FIPI

Federation of Indian Petroleum Industry

POLICY & ECONOMIC REPORT

OIL & GAS MARKET

APRIL 2023

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Executive Summary

IMF has projected the global growth to fall from 3.4% in FY 2022-23 to 2.8% for the current year FY 2023-24 and at 3% for FY 2024-25. Many factors such as the global shocks emanating into the financial sector due to Russian-Ukraine war crisis as well as the recent financial sector turmoil within the banking sector has translated into this global economic slowdown, as per IMF.

For advanced economies, due to unexpected failure of specialized banks in the US, growth is projected to decline from 2.7% in 2022 to 1.3% in 2023, before rising to 1.4 % in 2024. In the euro area and the United Kingdom, growth is expected to fall to 0.7 % and –0.4 %, respectively, this year before rebounding to 1.8% and 2.0 % in 2024, while the U.S growth is projected at 1.6% for FY 2023-24.

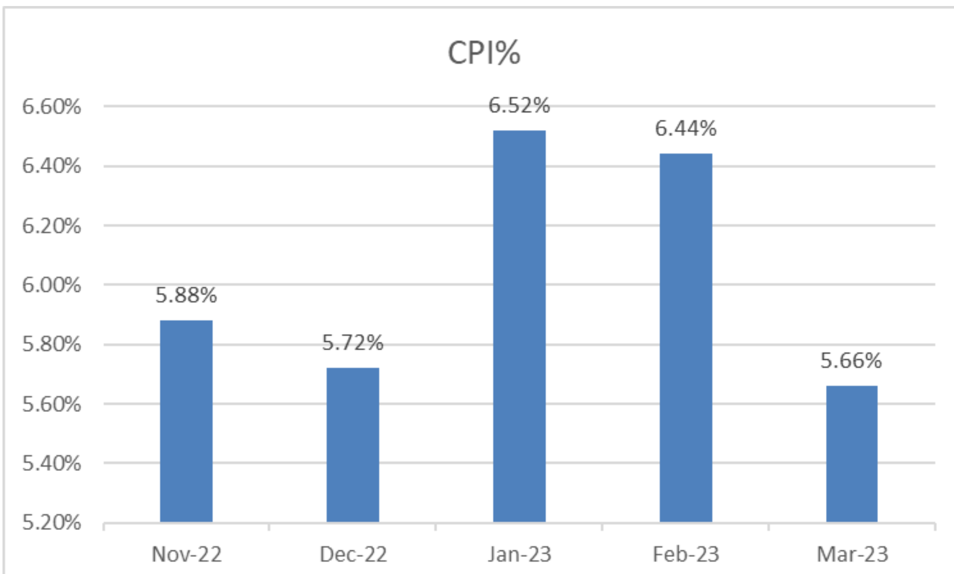
As far as India is concerned, Asian Development Bank (ADB) projects growth in India's gross domestic product (GDP) to moderate to 6.4% in FY 2023-24 and rise to 6.7% in FY 2024-25, driven by private consumption and private investment on the back of government policies to improve transport infrastructure, logistics, and the business ecosystem. Improving labor market conditions and consumer confidence is expected to drive growth in private consumption. The central government's commitment to significantly increase capital expenditure in FY2023, despite targeting a lower fiscal deficit of 5.9% of GDP, will also spur demand.

As per National Statistical Office (NSO), India's real gross domestic product (GDP) grew at 7% in 2022-23, with private consumption and public investment as the major drivers of growth. Economic activity remained resilient in Q4. Rabi foodgrains production is expected to increase by 6.2 % in 2022-23. The index of industrial production (IIP) expanded by 5.2 % in January while the output of eight core industries rose even faster by 8.9 % in January and 6.0 % in February, indicative of the strength of industrial activity.

In the services sector, domestic air passenger traffic, port freight traffic, e-way bills and toll collections posted healthy growth in Q4, while railway freight traffic registered a modest growth.

Considering the growth trends and factors influencing growth along with an assumption of a normal monsoon for 2023 RBI has projected the GDP growth for FY 2023-24 at 6.5 % with quarterly break up of Q1 at 7.8 %, Q2 at 6.2 %, Q3 at 6.1 % and Q4 at 5.9 %.

India's retail inflation (CPI) for March 2023 fell to a 15-month low of 5.66% as compared to 6.95% reported in the year ago period, according to data released by National Statistics Office (NSO). The food prices moderated on account of lower vegetable costs, offset in part by surging cereal prices. RBI has forecasted a reduction in inflation rate for FY 2023-24 which is below the upper tolerance band of 6 % with Q1 at 5.1 %, Q2 and Q3 at 5.4 %, Q4 at 5.2 % and an annual average rate of 5.2 %.



Source- NSO

To rein in the prices, the Reserve Bank of India (RBI) has so far hiked the benchmark repurchase rate by 250 basis points cumulatively since May 2022. The rate has been 6.50% in March 2023. In April 2023, the Monetary Policy Committee (MPC) decided to keep repo rate unchanged at 6.50 %.

The manufacturing activities in India accelerated and touched a four-month high in April, boosted by robust new business growth, mild price pressures, better international sales, and improving supply-chain conditions. S&P Global India Manufacturing Purchasing Managers' Index (PMI) in April rose to 57.2 in April from 56.4 in the month of March, 2023. India's manufacturing industry saw expanded at the fastest rate this calendar year so far on the back of stronger factory orders and production.

India's forex reserves ease after hitting over nine-month highs and stood at $584.25 billion for the week ended April21, 2023, according to RBI data. For the week ended April 21, the foreign currency assets, a major component of the reserves, decreased by USD 2.146 billion to USD 514.489 billion, according to the Weekly Statistical Supplement released by the RBI. Further, gold reserves dropped by USD 24 million to USD 46.151 billion. The Special Drawing Rights (SDRs) were up by USD 19 million to USD 18.431 billion, the apex bank said.

According to provisional data released by the Ministry of Commerce, India's overall exports (Merchandise and Services combined) in March 2023 are estimated to be USD 66.14 Billion, exhibiting a negative growth of (-)7.53 % over the same period last year. Overall imports in March 2023 are estimated to be USD 72.18 Billion, exhibiting a negative growth of (-) 7.98 % over the same period last year.

As far as oil and gas sector is concerned, recently announced OPEC+ supply cuts aggravated an expected oil supply deficit in 2H23 and boosting oil prices at a time of heightened economic uncertainty, even as industrial activity slows in the world's largest economies and production growth outside the alliance appears robust. The bloc's self-described "precautionary move" immediately triggered a jump in North Sea Dated crude from March lows.

Following the production cuts announcement by OPEC+, oil prices accelerated in April 2023, however, the prices have soon retreated amid concerns of global recession and high interest rate environment. The Federal Reserve and European Central Bank are expected to raise interest rates again, fueling concerns that tightening financial conditions could dampen global growth and hurt energy demand.

Natural gas spot prices at the U.S. Henry Hub benchmark averaged $2.31 per million British thermal units (MMBtu) in March 2023 as compared to $2.38 per million British thermal units (MMBtu) in February 2023. Natural gas prices started to decrease as high inventories of natural gas is available to meet the demand of the consumers plus lower than usual withdrawal rate contributed to sluggish demand for natural gas.

Economy in Focus

1. A snapshot of the global economy

Global economic growth

- IMF has projected the global growth to fall from 3.4% in FY 2022-23 to 2.8% for the current year FY 2023-24 and at 3% for FY 2024-25.

- Many factors such as the global shocks emanating due to Russian-Ukraine war crisis as well as the recent financial sector turmoil within the banking sector has translated into this global economic slowdown, as per IMF.

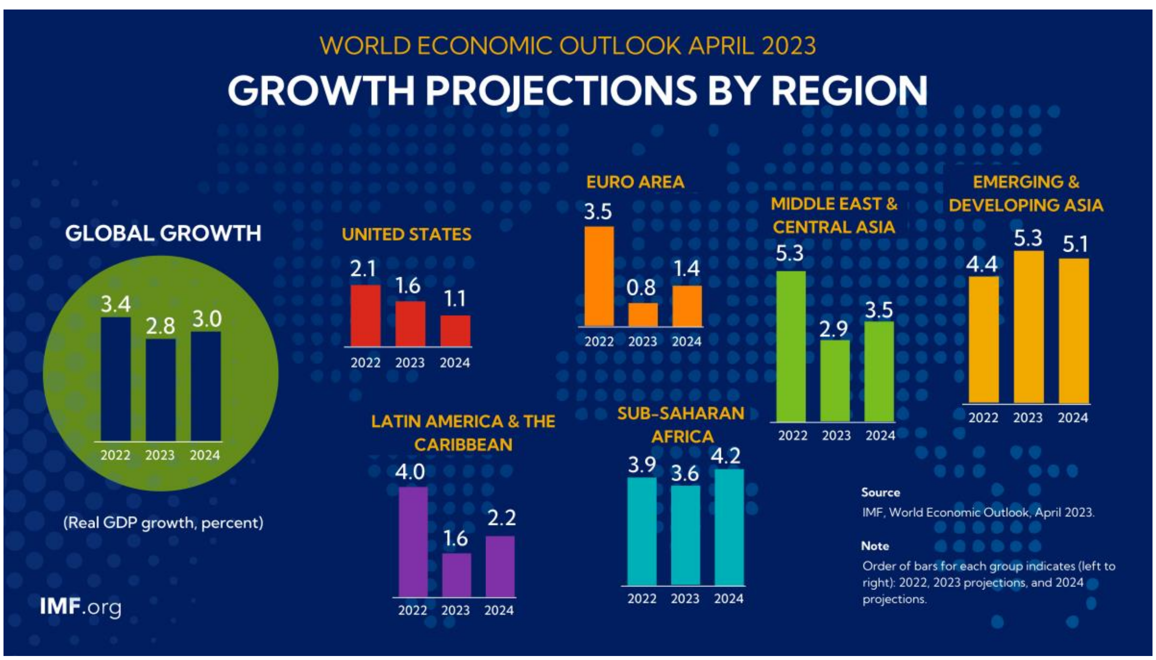
- Further, the simultaneous policy rate hikes across countries have contractionary monetary effects that provides policymakers limited policy space to offset the negative shocks.

- For advanced economies, due to unexpected failure of specialized banks in the US, growth is projected to decline from 2.7% in 2022 to 1.3% in 2023, before rising to 1.4 % in 2024. In the euro area and the United Kingdom, growth is expected to fall to 0.7 % and –0.4 %, respectively, this year before rebounding to 1.8% and 2.0 % in 2024, while the U.S growth is projected at 1.6% for FY 2023-24.

- The emerging market and developing economies are already powering ahead in many cases, due to a rebound in Chinese economy; with growth rates jumping from 2.8 % in 2022 to 3.9 % this year and 4.2% in 2024. According to IMF, India's growth is projected to moderate to around 5.9% in FY 2023-24, making it the fastest-growing economy in the world and then grow at 6.3% in FY 2024-25.

- IMF expects the global economy's gradual recovery from both the pandemic and Russia-Ukraine war crisis. Further, the synchronized tightening of monetary policy by most central banks should start to show results, with inflation expected to move back towards targets.

Source- IMF



Source- IMF

Figure- World Economic Outlook Projections

	2022	2023	2024
World Output	3.4	2.8	3.0
Advanced Economies	2.7	1.3	1.4
United States	2.1	1.6	1.1
Euro Area	3.5	0.8	1.4
Germany	1.8	-0.1	1.1
France	2.6	0.7	1.3
Italy	3.7	0.7	0.8
Spain	5.5	1.5	2.0
Japan	1.1	1.3	1.0
United Kingdom	4.0	-0.3	1.0
Canada	3.4	1.5	1.5
Other Advanced Economies	2.6	1.8	2.2
Emerging Market and Developing Economies	4.0	3.9	4.2
Emerging and Developing Asia	4.4	5.3	5.1
China	3.0	5.2	4.5
India	6.8	5.9	6.3
Emerging and Developing Europe	0.8	1.2	2.5
Russia	-2.1	0.7	1.3
Latin America and the Caribbean	4.0	1.6	2.2
Brazil	2.9	0.9	1.5
Mexico	3.1	1.8	1.6
Middle East and Central Asia	5.3	2.9	3.5
Saudi Arabia	8.7	3.1	3.1
Sub-Saharan Africa	3.9	3.6	4.2

Source- IMF

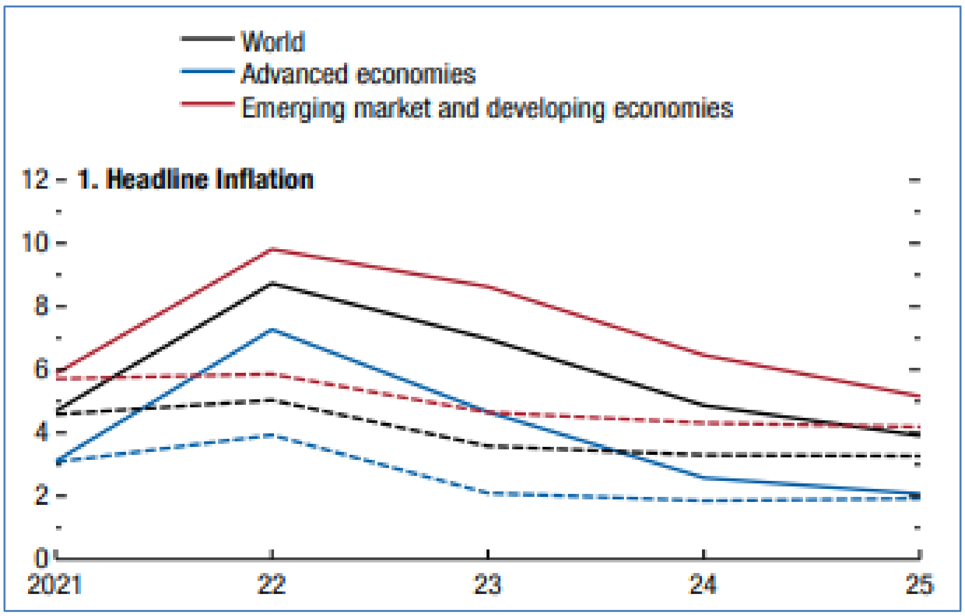
Global Inflation

- According to IMF, global headline (consumer price index) inflation is projected to decline from 8.7 % in 2022 to 7.0 % in 2023 and 4% in 2024. In case of India, IMF projected inflation to ease up to 4.9 % this year and 4.4 % next fiscal year.

- Global headline inflation has been declining since mid-2022. A fall in food and energy commodity prices, particularly for the United States, euro area, and Latin America, has contributed to this decline.

- Further, many Central banks around the world have been raising interest rates since 2021 which has led to declining rate of inflation.

Figure- Headline inflation

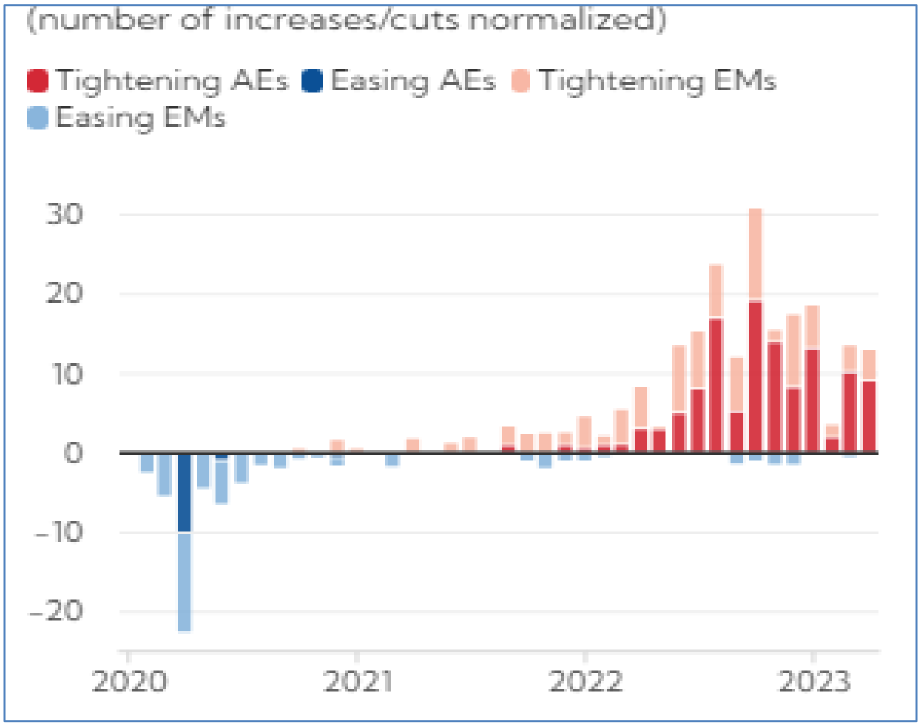


Source- IMF

Central Banks stance to tame inflation

- Central banks across the world have tightened monetary policy in order to reduce the inflationary impact on the aggregate demand and thus ensure price stability.
- The US Federal Reserve raised its benchmark interest rate by 25 bps in February, 2023 whereas other central banks, including in the UK, Euro area, New Zealand, and Israel, increased their policy rates by 50 bps each.
- Japan, however, continued to diverge by maintaining an accommodative stance.

Figure- Monetary tightening by Central Banks



Source- IMF

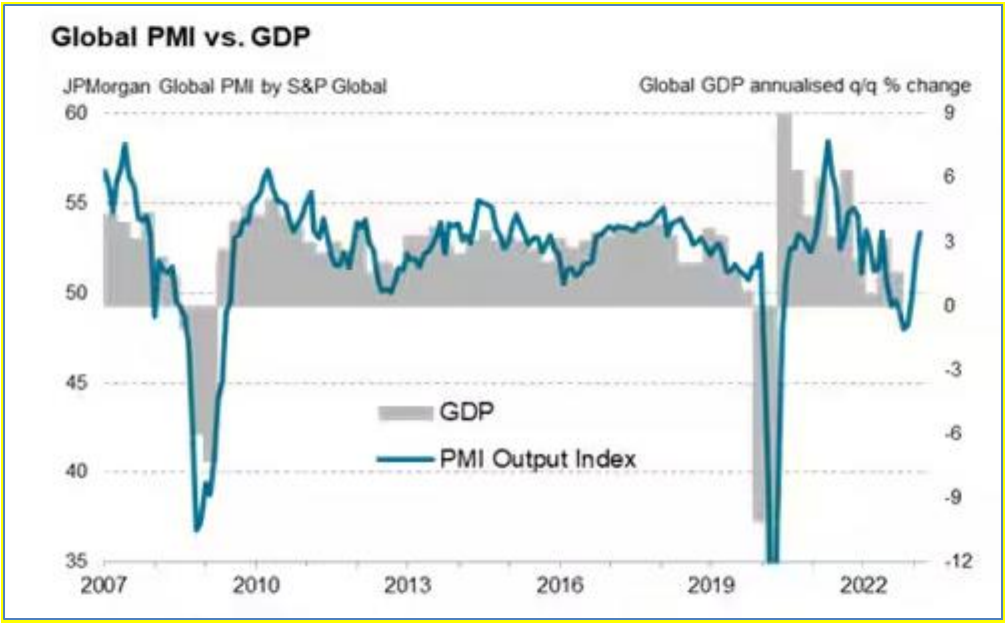
Global Purchasers Managers Index

Global business activity growth accelerated in the month of March 2023 as JPMorgan Global PMI Output Index - produced by S&P Global - rose from 52.1 in February 2023 to 53.4 in March 2023. This was mainly driven by growth in the services sector. India reported the fastest expansion, while Spain and Italy also posted above-average growth.

While the growth in services sector was mainly due to the rising travel and tourism business as well as reviving financial services activity, the manufacturing output barely rose due to supply chain disruptions and backlogs of existing work order rather than new factory orders coming into place.

Global price pressures also moderated, as input costs rose at the slowest rate for 28 months. While manufacturing input cost inflation has eased to below the long-run trend, service sector input cost inflation remains far above the long-run average.

Figure- Global output PMI



Source- S&P Global

2. 2nd meeting of G20 Finance Ministers and Central Bank Governors (FMCBG) under the Indian G20 Presidency

The second meeting of G20 Finance Ministers and Central Bank Governors (FMCBG) under the Indian G20 Presidency was held on 12-13 April 2023 at Washington, DC on the margins of the 2023 Spring Meetings of the International Monetary Fund and the World Bank Group. Union Finance Minister Smt. Nirmala Sitharaman, and Governor, Reserve Bank of India (RBI), Shaktikanta Das jointly chaired the meeting. The meeting saw participation of around 350 delegates from G20 members, 13 invitee countries, and various international and regional organizations.

The meeting was organized in three sessions covering the Global Economy, International Financial Architecture, Sustainable Finance, Financial Sector, Financial Inclusion, and International Taxation. The goal of this FMCBG meeting was to deliberate on the progress made by the various workstreams of the G20 Finance Track on the deliverables that were tasked to them by the Ministers and Governors in the February G20 FMCBG Chair’s Summary and Outcome Document and to seek guidance on the way forward.

- During the session on Global Economy and International Financial Architecture, members discussed the key challenges to the global economic outlook, including the war in Ukraine, food and energy insecurity, climate change, and recent risks to financial stability. Members agreed that the G20 can contribute to building a common understanding on fostering a conducive environment for global economic recovery, and ensuring that the most vulnerable countries and sections of the population are adequately protected.

- During the second session on Sustainable Finance, Financial Sector, and Financial Inclusion, discussions focused on the mobilization of resources for climate change, the role of the multilateral financial institutions in catalyzing private finance flows for Sustainable Development Goals and the role of the G20 in scaling up and encouraging wider adoption of social impact investment instruments. Members also deliberated on the macroeconomic and financial challenges posed by the crypto-assets ecosystem and exchanged views on potential global policy responses to crypto-assets, considering the risks, especially to Emerging Markets and Developing Economies (EMDEs).

- The third session on International Taxation discussed the need for coordinated efforts toward effective implementation and wider adoption of the two-pillar international tax package. Ministers shared suggestions on how best G20 can complement global efforts to enhance tax transparency.

On the margins of the G20 FMCBG sessions, high-level side events were also held. A meeting of the Global Sovereign Debt Roundtable (GSDR) was also held on April 12, 2023, which was co-chaired by Hon'ble Finance Minister, IMF MD, and World Bank President. The meeting saw discussions on the current global debt landscape and ways to address existing challenges in debt restructuring

3. Asian Development Bank forecasts 4.8% growth for Asia and Pacific in 2023 and 2024

The Asian Development Bank (ADB) forecasts faster growth for developing economies in Asia and the Pacific this year, as growth is seen in consumption, tourism, and investment in these countries. The rebounding of People's Republic of China is the main factor brightening the region's growth prospects.

Economies in Asia and the Pacific are projected to grow 4.8% this year and next year, improving on the 4.2% growth rate in 2022, according to the Asian Development Outlook (ADO) April 2023. Excluding the PRC, developing Asia is expected to grow 4.6% this year and 5.1% in 2024.

According to ADB, improved consumption and investment are boosting recovery in many regional economies, offsetting the impacts of elevated food and energy prices caused by the Russian- Ukraine war crisis. Tourism and remittances are trending upward as pandemic restrictions ease further. In many tourism-dependent economies, visitor arrivals are steadily improving toward pre-pandemic levels.

Further, ADB projects, the PRC economy to grow 5.0% this year and 4.5% in 2024, compared with 3.0% growth in 2022. India is forecast to expand by 6.4% this year and 6.7% next year, due to healthy domestic demand.

Strong tourism performance and robust domestic demand are boosting Southeast Asian economies like Indonesia, the Philippines, and Vietnam, with the subregion projected to grow by 4.7% this year and 5.0% in 2024. Economies in the Caucasus and Central Asia can also expect steady growth, with the subregion forecast to expand by 4.4% this year and 4.6% in 2024. Regional inflation will decelerate to 4.2% in 2023 and 3.3% in 2024 after reaching 4.4% last year.

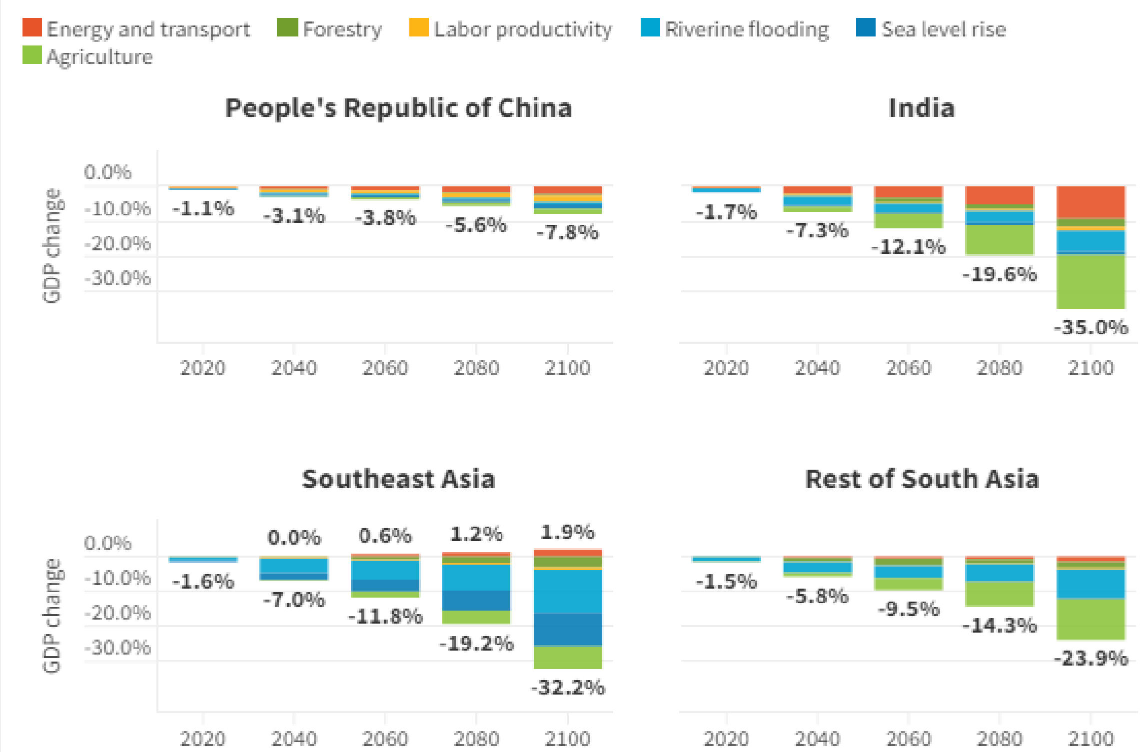
4. Benefits of Global Net-Zero Transition can be 5 Times the Costs in Developing Asia- ADB

According to Asian Development Outlook Thematic Report: Asia in the Global Transition to Net Zero, global efforts to achieve net-zero greenhouse gas emissions can yield substantial economic and social benefits in terms of avoided economic losses from climate change, as well as improved health and environmental sustainability.

However, for developing Asia, these benefits could be 5 times the costs of mitigation. The costs to the region would be about 1% of gross domestic product (GDP) annually and thus it becomes imperative to adopt economically efficient approaches, such as carbon pricing.

ADB highlighted that while Asia and the Pacific region accounts for around 70% of the global population and contributes nearly half of global greenhouse gas emissions in 2019; it becomes important to transform regions' growth patterns to eliminate costs of mitigation.

Economic Losses from Climate Change in Developing Asia under a High Emissions Scenario by 2100



Source: Asian Development Bank estimates from van der Wijst, K. et al. 2023. New Damage Curves and Multi-Model Analysis Suggest Lower Optimal Temperature. Nature Climate Change.1777.

This transformation requires rapidly replacing coal and other fossil fuels with renewable energy sources, enhancing energy efficiency, and conserving "carbon sinks," such as forests. Therefore, a global net-zero approach could save about 350,000 lives a year in Asia and the Pacific by 2030 thanks to reduced air pollution. It could also create 1.5 million additional jobs in the energy sector by 2050.

The report recommends that policy makers focus on three main areas: carbon pricing and subsidy reforms for fossil fuels and land use, regulations, and incentives to mobilize finance and promote cleaner energy, and social protection and employment support to ensure fairness.

5. Only 12% of the UN Sustainable Development Goal targets are on track

According to a new UN report, progress on the Sustainable Development Goals (SDGs) is not going well. Among roughly 140 assessed SDG targets, only 12% are on course to meet the 2030 deadline. According to UN, 50% of the action plan has seen weak and insufficient progress. Progress on nearly one third of the SDGs has either remained unchanged or even fallen below 2015 levels.

UN highlighted that the covid pandemic and Russia-Ukraine war crisis are the primarily factors that have exacerbated the climate crisis, biodiversity loss, and pollution. SDG financing has also slipped since the pandemic, with the annual funding gap soaring from $2.5 trillion before covid to over $4 trillion last year.

The 2030 Agenda for Sustainable Development was drawn up in 2015 and adopted by all UN member states. The plan includes 17 goals, broken down into 169 targets, that are meant to address a range of structural problems in the developing and developed world, such as gender equality, education access, and healthcare. The ambitious plan of action also set out to end poverty and hunger by 2030.

By the digits: The UN's grim SDG progress report

26: The number of people in the world who possess the same wealth as half of the global population

286: The number of years it will take to achieve gender equality, given the current rate of progress

575 million: The number of people who will be living in extreme poverty in 2030, accounting for nearly 7% of the global population

3%: The increase in extinction risk since 2015

According to the UN report, many of the goals were impacted by the covid pandemic, which reversed three decades of progress on reducing global poverty. Education also took a hit from the pandemic. Even prior to covid, the SDG targets were not on track to meet the 2030 goals, but lockdowns and school closures exacerbated education losses. By 2030, the report estimates that 84 million children will not be in school, and 300 million students will still lack basic math and reading skills.

6. International Labor Organizations (ILO) issues wage protection guidance for migrant workers

Migrant workers will benefit from new ILO guidance on wage protection that outlines relevant international labor standards.

The Guidance Note, which was launched on 27th April, 2023, focuses on wage-related issues faced by migrant workers, including non-payment and delayed payment of wages. These can lead to debt bondage and forced labor, according to the ILO Committee of Experts on the Application of Conventions and Recommendations (CEACR). Adequate wages and timely payment are essential for securing decent work and social justice and have the most direct and tangible effect on the everyday lives of workers.

Migrant workers may face discrimination, xenophobia and racism, unfair recruitment processes, and restrictions based on their migration status which can contribute to labor and wage-related abuses. The issue of non-payment of wages is one of the most common forms of complaints by low-wage migrant workers and especially workers in irregular status.

Governments around the world acknowledged the issue in the 2022 Progress Declaration of the International Migration Review Forum, committing to "enhance international cooperation to allow for the recovery of earned wages, benefits and entitlements of returning migrants." Wages need to be paid in full and in a predictable and timely manner for workers to receive the expected benefits of the wages they earn.

7. Indian Economy

India's economic growth

- Asian Development Bank (ADB) projects growth in India's gross domestic product (GDP) to moderate to 6.4% in FY 2023-24 and rise to 6.7% in FY 2024-25, driven by private consumption and private investment on the back of government policies to improve transport infrastructure, logistics, and the business ecosystem.

- Improving labor market conditions and consumer confidence is expected to drive growth in private consumption. The central government's commitment to significantly increase capital expenditure in FY2023, despite targeting a lower fiscal deficit of 5.9% of GDP, will also spur demand.

- According to ADB, the services sector will grow strongly in FY2023 and FY2024 owing to recovery in tourism and contract services.

- Further, ADB highlighted that recent announcements to boost agricultural productivity, such as setting up digital services for crop planning and support for agriculture startups will be important in sustaining agriculture growth in the medium term.

- In case of inflation, ADB pointed that inflation is likely to moderate to 5% in FY2023, assuming moderation in oil and food prices, and slow further to 4.5% in FY2024 as inflationary pressures subside.

Further, according to United Nations, India's economic growth is projected to decelerate to 6 % in 2023 from 6.6 % in 2022. United Nations highlighted that the positive effect of high public / private investment and consumption as well as rising exports were partly offset by higher energy import bills, which deepened the current account deficit and used up the reserves. Further, monetary tightening by RBI has led to an adverse impact on economic activity and financial stability.

As per National Statistical Office (NSO), India's real gross domestic product (GDP) grew at 7% in 2022-23, with private consumption and public investment as the major drivers of growth. Economic activity remained resilient in Q4. Rabi foodgrains production is expected to increase by 6.2 % in 2022-23. The index of industrial production (IIP) expanded by 5.2 % in January while the output of eight core industries rose even faster by 8.9 % in January and 6.0 % in February, indicative of the strength of industrial activity. In the services sector, domestic air passenger traffic, port freight traffic, e-way bills and toll collections posted healthy growth in Q4, while railway freight traffic registered a modest growth.

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Inflation in India

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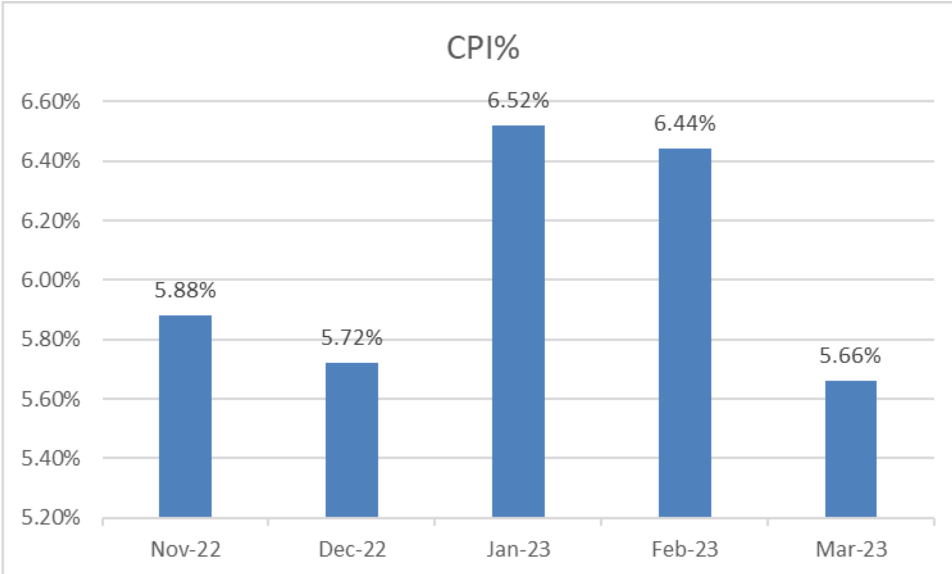
- The food prices moderated on account of lower vegetable costs, offset in part by surging cereal prices.

- The overall inflation in the food basket was 4.79 % in March 2023 as against 5.95 % in February and 7.68 % in the year-ago period. The food basket has a weightage of 54.18 % in the overall CPI.

- India's retail inflation was above RBI's 6 % target for three consecutive quarters and had managed to fall back to the RBI's comfort zone only in November 2022. March 2023 is the first month this year so far where India has seen a retail inflation reading below the 6 % RBI upper tolerance limit.

- RBI has forecasted a reduction in inflation rate for FY 2023-24 which is below the upper tolerance band of 6 % with Q1 at 5.1 %, Q2 and Q3 at 5.4 %, Q4 at 5.2 % and an annual average rate of 5.2 %.



Source- NSO

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India PMI

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On the prices front, although manufacturers signaled higher operating costs in April—linked to fuel, metals, transportation, and some other raw materials—the overall rate of inflation remained below its long-run average.

India's external position

India's forex position

- India's forex reserves ease after hitting over nine-month highs and stood at $584.25 billion for the week ended April21, 2023, according to RBI data.
- For the week ended April 21, the foreign currency assets, a major component of the reserves, decreased by USD 2.146 billion to USD 514.489 billion, according to the Weekly Statistical Supplement released by the RBI.

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India's foreign trade position

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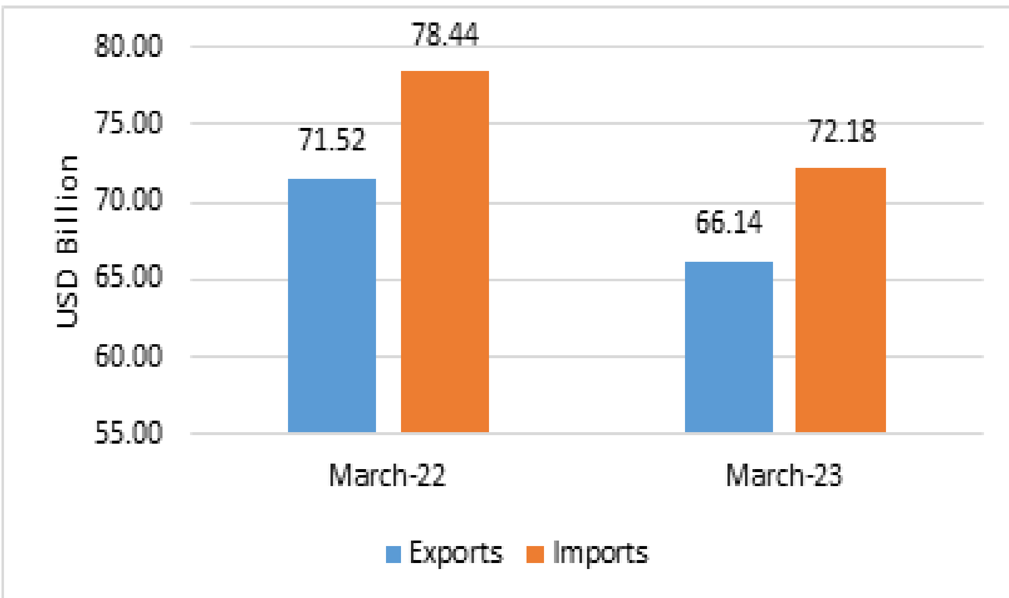
Figure- Overall Trade during March 2023



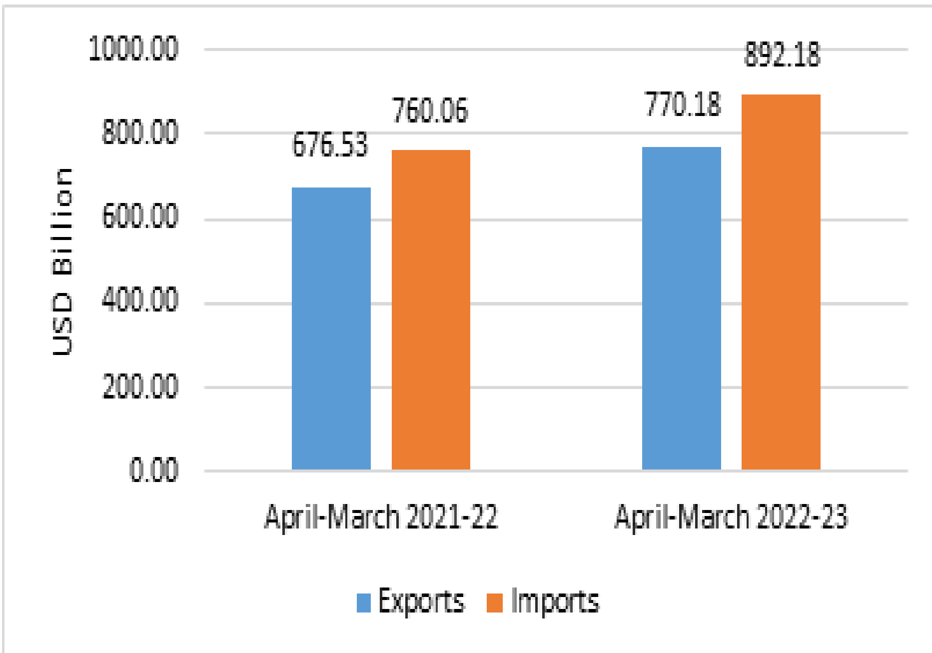
Source- Ministry of Commerce & Industry

- India's merchandise exports have been on a declining trend since its peak in March 2022. This steep year-on-year fall comes from both petroleum as well as non-petroleum products exports. Petroleum products exports stood at USD 5.4 billion in March 2023. This is 44.6 % lower than a year ago. This is the steepest fall in year-on-year change in exports since November 2020.

- India's merchandise imports increased in March 2023 compared to February, but remained lower compared to March 2022. In March, total merchandise imports were valued at USD 58.1 billion - a 9.1 % increase compared to February. Imports were 7.9 % lower this month compared to a year ago. A fall in imports on a year-on-year basis comes mostly from the POL segment. POL imports were 23.8 % lower in March 2023 compared to March last year.

- Trade deficit amounted to USD 19.7 billion in March 2023 as compared to a deficit of USD 16.2 billion in February and USD 18.5 billion in March 2022

India's overall exports (Merchandise and Services combined) in FY 2022-23 (April-March) is estimated to exhibit a growth of 13.84 % over FY 2021-22 (April-March). As India's domestic demand has remained steady amidst the global slump, overall imports in FY 2022-23 (April-March) are estimated to exhibit a growth of 17.38 % over FY 2021-22 (April-March).



Source- Ministry of Commerce & Industry

8. India Climbs 6 Spots to 38th in World Bank's Logistics Performance Index 2023

India climbed six places in the World Bank's Logistic Performance Index 2023 to rank 38 out of 139 countries. The country was ranked 44 in 2018 even as its performance drastically improved from 2014, when it was at 54 in the index.

Prime Minister Narendra Modi had launched the PM Gati Shakti initiative, a national master plan for multimodal connectivity, in October 2021 to reduce logistics cost and boost the economy by 2024-25. Last year, he launched the National Logistics Policy (NLP) to ensure quick last-mile delivery, end transport-related challenges, save time and money of manufacturers, prevent wastage of agricultural products, and ensure a desired speed in the logistics sector.

The significant findings from the report:

- India's infrastructure moved five places to 47 in 2023 from 52 in 2018. India ranked 22nd for international shipments from 44 in 2018 and moved four places up to 48 in logistics competence and equality.
- In timelines, India jumped 17 places in the rankings, while it moved three places up in tracking and tracing.
- Two major factors for the country's jump in the index could be modernisation and digitalisation, which the report quotes as a reason for emerging economies like India to leapfrog advanced countries.

The Logistics Performance Index (LPI) covers 139 countries. It measures the ease of establishing reliable supply chain connections and structural factors that make it possible, such as the quality of logistics services, trade, and transport-related infrastructure, as well as border controls.

9. Highest GST collection in April, 2023- Indian economy

April witnessed the highest ever monthly GST collection of Rs 1.87 lakh crore for the Indian economy. Gross Goods and Services (GST) collection in April, 2023 rose 12 % on an annual basis to touch the all-time high level. The collection in April was Rs 19,495 crore more than the previous highest collection of Rs 1,67,540 lakh crore recorded in April 2022.

10. Led by China, India, the 5 BRICS nations now contribute more to world GDP than industrialized G7

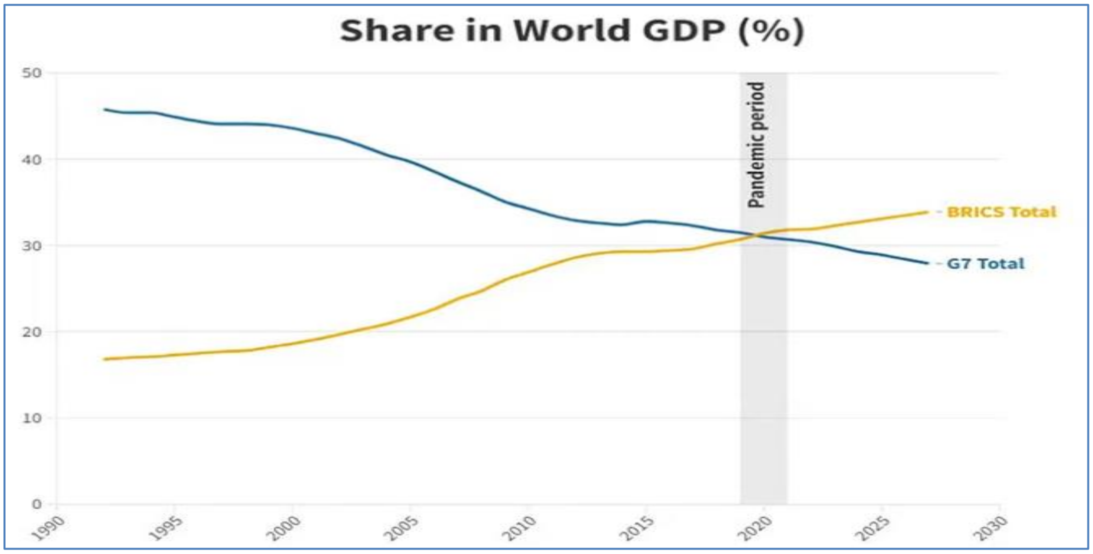
Since the beginning of 2020, the BRICS nations contribute more towards global Gross Domestic Product (GDP) than the G7 industrialized nations do, in terms of purchasing power parity (PPP). The BRICS countries comprise Brazil, Russia, India, China, and South Africa, and represent the largest developing economies. The G7 are the largest industrialized economies and consist of the US, the UK, Germany, France, Japan, Italy, and Canada.

While the G7 countries have historically been among the largest economies in the world, the BRICS nations especially China and India have been and continue to be the most populous. The G7 nations account for about 10 % of the world's population, whereas just India and China, with 140-141 crore people each, together make up about 35 %.

By adjusting based on the currency exchange rates, the PPP model shows the value of GDP at PPP computed for both groups. By 2019, the contributions of the two groupings had become nearly equal, with the G7 contributing 31.5 % to global GDP, and the BRICS accounting for 30.7 %.

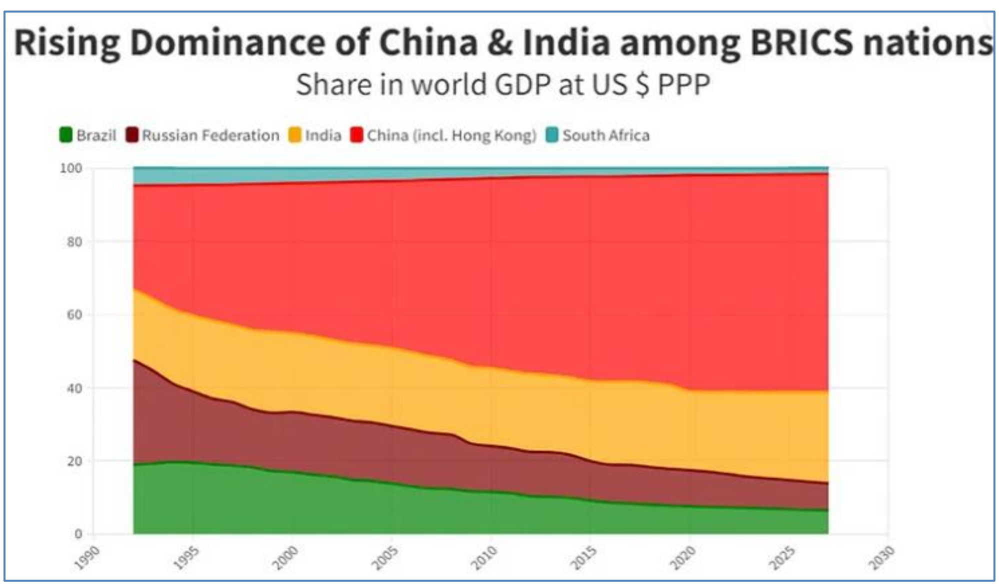
Within the BRICS, however, the break-up highlights the dominance of China (itself accounting for 17.6 % of global GDP in 2019), followed by India at a distant second (7 %), Russia (3.1 %), Brazil (2.4 %), and South Africa (0.6 %) together made up just 6.1 % of world GDP.

It was in 2020, however, that the G7-BRICS dynamic flipped. That year, the BRICS (31.4 %) overtook the G7 (30 %). The gains on behalf of the developing countries have largely been made by China and India. The data shows that the 2000-10 decade was mainly China's. During this period, it rapidly caught up with the US in terms of share in world GDP (nearly doubling its contribution to 14 % in 2010 from 7.6 % in 2010), and by 2013, had overtaken it to become the largest economy in PPP terms.



Source- IMF

In nominal terms, however, the US was and still is far ahead. In 2013, the US was a $16.2 trillion economy in current US dollars, while China was at $9 trillion. India was a $1.9 trillion economy at the time. However, India is predicted to increase its contribution to world GDP, according to the IMF's estimates. From contributing 6.7 % in 2020, it is predicted to account for 8.5 % by 2027, which will likely grow further over the subsequent three years.



Source- IMF

Lessons from Economics

Role of Human Capital in Economic Growth

Economic Growth is the value of goods and services produced in an economy. It is measured as a % of GDP. Consumer spending and business investment are the two key main drivers of economic growth.

Higher consumer demand leads to an increase in the output produced by the companies, which further leads to higher employment and wage earnings. Higher wages further lead to increased consumer spending and finally higher economic output. This leads to a circular flow of income. Thus, a significant portion of human capital in the form of skilled and trained workforce is formed, which indirectly contributes to the economic growth.

Human capital affects economic growth and can help to develop an economy by expanding the knowledge and skills of its people. Human capital consists of the knowledge, skills, and health that people invest in and accumulate throughout their lives, and further contribute to the economic growth. Investing in people through nutrition, health care, quality education, jobs and skills helps develop human capital, and this is key to ending extreme poverty and creating more inclusive societies.

Human capital is positively correlated to economic growth since investment tends to boost productivity. The process of educating a workforce is a type of investment, but instead of capital investment such as equipment, the investment is in human capital.

Three main features associated with human capital are as below: -

- **Government's role in creating Human capital**
  The role of governments is key to expanding the skill sets and education levels of a country's population. They can offer higher education to people at no cost. Workers with more education or better skills tend to have higher earnings, which, in turn, increases economic growth through additional consumer spending.

- **Corporate Sector's Role**
  Companies provide on-site training and in-house seminars/trainings, to boost productivity of their workers which further helps to stimulate and increase their profit earnings.

- **Employment as the main indicator for determining human capital contribution in economic growth**
  Rising workforce in an economy means higher consumer spending, leading to higher output and increase revenue base for the companies. This further translates into higher economic growth of a country. As a result, employment is a key indicator or metric for determining how GDP growth may perform.

Study by OECD to review the impact of employment on economic growth

The OECD or The Organization for Economic Co-operation and Development is a group of more than 30 member countries that help to shape and develop economic and social policies across the globe. OECD routinely analyzes the impact of education levels on employment and ultimately, economic growth. The OECD's 2020 annual Education at a Glance report reviewed how education systems operate, the level of spending, and who benefited or participated.

The OECD also measures how increases in education for men and women drive employment growth. In 2020, the OECD found that countries with people who had grammar and high school educations experienced an employment rate among 25–34-year-olds of 72% for men and 45% for women. However, those who had college or graduate education levels experienced an employment rate of 89% for men and 81% for women.

Human Capital Index (HCI), was published by the World Bank Group in October 2018 and updated in 2020, shows that nearly 60% of children born will be, at best, only half as productive as they could be with complete education and full health. This has an adverse impact on the economic growth of the entire world.

The gaps and challenges associated in human capital development are at large widening with rapid global changes in technology, demography, fragility, and climate. Conflict events and pandemics can have a devastating effect on human capital through loss of life, livelihood, nutrition, and the interruption of essential health and education services.

Oil Market

Crude oil price – Monthly Review

Recent announced OPEC+ supply cuts aggravated an expected oil supply deficit in 2H23 and boosting oil prices at a time of heightened economic uncertainty, even as industrial activity slows in the world's largest economies and production growth outside the alliance appears robust. The bloc's self-described "precautionary move" immediately triggered a jump in North Sea Dated crude from March lows.

OPEC+ voluntary curbs of 1.16 mb/d (Saudi Arabia to have a voluntary reduction of 500,000 barrels per day (bpd), Iraq 211,000 bpd, United Arab Emirates 144,000 bpd, Kuwait 128,000 bpd, Algeria 48,000 bpd, Oman 40,000 bpd, Kazakhstan 78,000 bpd, and Gabon 8,000 bpd) come on top of an announced 500 kb/d cut in Russian output from March that has now been extended through the rest of the year, and a 2 mb/d reduction in targets taking effect last November. The current move brings the total volume of cuts by

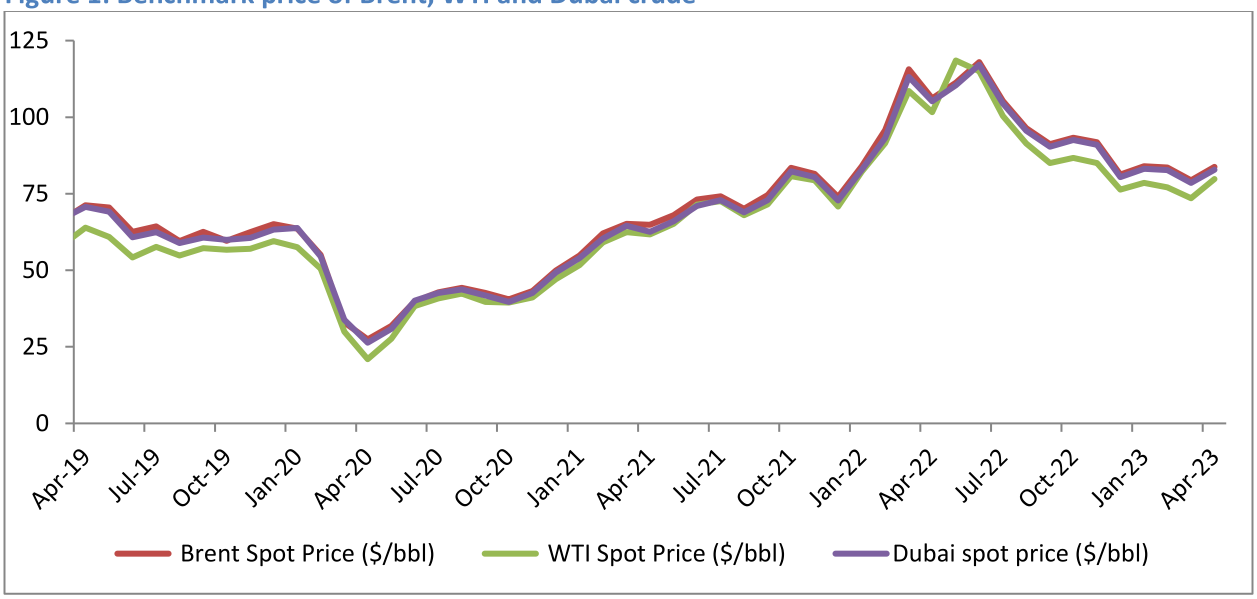
OPEC+ to 3.66 million bpd, which is equal to 3.7% of the global demand. While apparently a move to support declining prices amid financial turmoil in mid-March, rising global oil stocks may have also contributed to the decision. Growth from the US shale patch, traditionally the most price-responsive source of more output, is currently limited by supply chain bottlenecks and higher costs.

Following the production cuts announcement by OPEC+, oil prices accelerated in April 2023, however, the prices have soon retreated amid concerns of global recession and high interest rate environment. The Federal Reserve and European Central Bank are expected to raise interest rates again, fueling concerns that tightening financial conditions could dampen global growth and hurt energy demand.

As per market reports, the production cuts would impact prices thereby further exacerbating inflationary pressures on the global economy. Production cut has started impacting crude oil prices, as India imports more than three-fourths of its crude requirement, higher prices will push the import bill, which means more demand for the dollar and that will further widen the current account deficit and weaken the rupee.

Brent crude ranged an average to $83.72 a barrel and WTI ranged to $79.84 per barrel in the month of April.

Figure 1: Benchmark price of Brent, WTI and Dubai crude



Source: World Bank

- Brent crude price averaged $83.72 per bbl in April 2023, up by 5.5% on a month on month (MoM) and down by 21.1% on year on year (YoY) basis, respectively.
- WTI crude price averaged $79.84 per bbl in April 2023, up by 8.6% on a month on month (MoM) and down by 21.5% on year on year (YoY) basis, respectively.
- Dubai crude price averaged $82.86 per bbl in April 2023, up by 5.5% on a month on month (MoM) and down by 21.2% on year on year (YoY) basis, respectively.

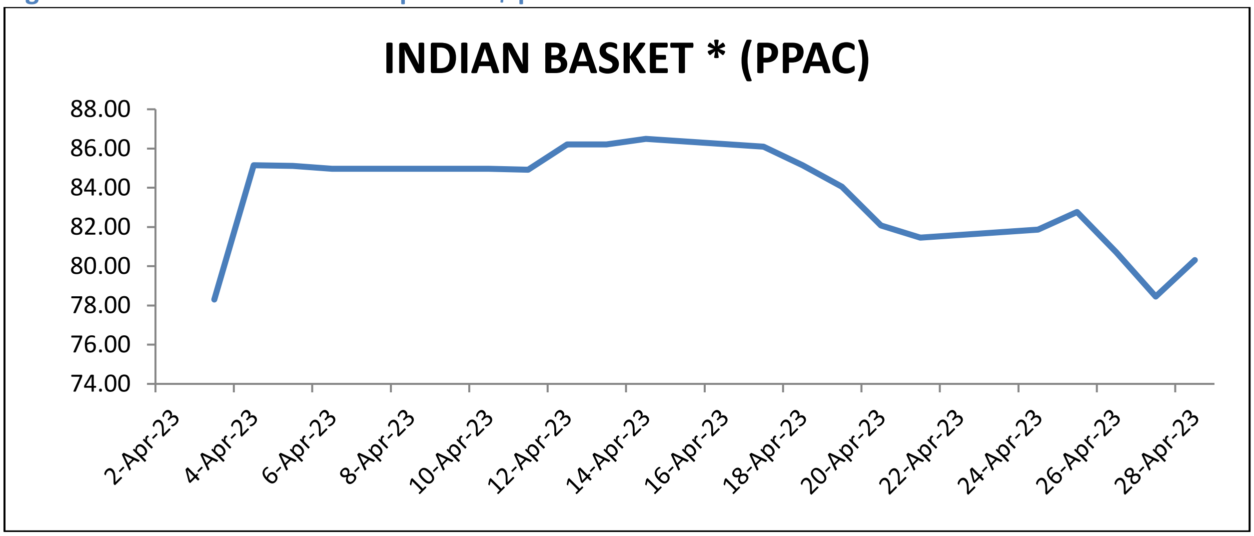
Table 1: Crude oil price in April, 2023

Crude oil	Price ($/bbl)	MoM (%) change	YoY (%) change
Brent	83.72	5.5%	-21.1%
WTI	79.84	8.6%	-21.5%
Dubai	82.86	5.5%	-21.2%

Source: World Bank

Indian Basket Crude oil price

Figure 2: Indian crude oil basket price in $ per bbl



Source: PPAC

- Indian crude basket price averaged $83.51 per barrel in April 2023, up by 6.3% on Month on Month (M-o-M) and down by 18.6% on a year on year (Y-o-Y) basis, respectively.

Oil production situation

- Production cuts by OPEC+ will push world oil supply down 400 kb/d by end-2023. From March - December, gains of 1 mb/d from non-OPEC+ fail to offset a 1.4 mb/d decline from the producer bloc. For the year as a whole, global oil production growth slows to 1.2 mb/d versus 4.6 mb/d in 2022. Non-OPEC+, led by the US and Brazil, drives the 2023 expansion, rising 1.9 mb/d. OPEC+ is expected to drop by 760 kb/d.
- Russian oil exports in March soared to the highest since April 2020 thanks to surging product flows that returned to levels last seen before Russia invaded Ukraine. Total oil shipments rose by 0.6 mb/d to 8.1 mb/d, with products climbing 450 kb/d m-o-m to 3.1 mb/d. Estimated oil export revenues rebounded by $1 billion to $12.7 billion but were 43% lower than a year ago.

Table 2: Non-OPEC liquids production in 2023, mb/d

Non-OPEC liquids production	2022	1Q23	2Q23	3Q23	4Q23	2023
Americas	*26.84*	*27.59*	*27.84*	*28.20*	*28.57*	*28.05*
of which US	19.21	19.76	20.19	20.38	20.61	20.24
Europe	*3.57*	*3.68*	*3.74*	*3.79*	*3.92*	*3.78*
Asia Pacific	0.48	0.48	0.49	0.49	0.48	048
Total OECD	**30.89**	**31.74**	**32.07**	**32.48**	**32.97**	**32.32**
China	4.48	4.61	4.60	4.50	4.48	4.54
India	0.77	0.77	0.79	0.78	0.78	0.78
Other Asia	2.31	2.37	2.39	2.34	2.37	2.37
Latin America	6.34	6.71	6.67	6.70	6.79	6.72
Middle East	3.29	3.26	3.29	3.30	3.31	3.29
Africa	1.31	1.31	1.33	1.34	1.33	1.33
Russia	11.03	11.22	10.00	9.94	9.99	10.28
Other Eurasia	2.83	3.04	3.00	2.94	2.98	2.99
Other Europe	0.11	0.10	0.10	0.10	0.10	0.10
Total Non-OECD	**32.47**	**33.37**	**32.17**	**31.95**	**32.13**	**32.40**
Total Non-OPEC production	63.36	65.11	64.24	64.43	65.10	64.72
Processing gains	2.40	2.47	2.47	2.47	2.47	2.47
Total Non-OPEC liquids production	**65.76**	**67.58**	**66.71**	**66.90**	**67.57**	**67.19**
Previous estimate	**65.76**	**67.07**	**66.68**	**67.19**	**67.86**	**67.20**
Revision	0.00	0.51	0.03	-0.29	-0.30	-0.01

Source: OPEC

- From the above table, it can be inferred, that the total non-OPEC liquids production is expected to reach 67.19 mb/d by 2023.
- OPEC NGLs and non-conventional liquids production in 2022 is forecast to have grown by 0.1 mb/d to average 5.4 mb/d, and is expected to increase by 50 tb/d to average 5.4 mb/d in 2023.
- OPEC-13 crude oil production averaged 28.80 mb/d in March 2023, lower by 86 tb/d m-o-m.

Oil demand situation

- World oil demand will climb by 2 mb/d in 2023 to a record 101.9 mb/d. Reflecting the widening disparity between regions, non-OECD countries, buoyed by a resurgent China, will account for 90% of growth. OECD demand, dragged down by weak industrial activity and warm weather, contracted by 390 kb/d y-o-y in 1Q23, its second consecutive quarter of decline. Jet/kerosene accounts for 57% of 2023 gains.
- Oil demand in developed nations has underwhelmed in recent months, slowed by warmer weather and sluggish industrial activity, robust gains in China and other non-OECD countries are providing a strong offset. In 1Q23, OECD oil demand fell 390 kb/d y-o-y, but a solid Chinese rebound lifted global

oil demand 810 kb/d above year-earlier levels to 100.4 mb/d. A much stronger increase of 2.7 mb/d is expected through year-end, propelled by a continued recovery in China and international travel. For 2023 as a whole, world oil demand is forecast to rise by an average 2 mb/d, to 101.9 mb/d, with the non-OECD accounting for 87% of the growth and China alone making up more than half the global increase.

Table 3: World Oil demand, mb/d

	2022	1Q23	2Q23	3Q23	4Q23	2023	Growth	%
Total OECD	**45.96**	**45.78**	**45.55**	**46.87**	**46.17**	**46.10**	**0.14**	**0.30**
~ of which US	*20.43*	*20.41*	*20.43*	*20.75*	*20.37*	*20.49*	*0.06*	*0.29*
Total Non-OECD	**53.62**	**55.77**	**55.16**	**55.16**	**57.10**	**55.80**	**2.18**	**4.07**
~ of which India#	*5.14*	*5.41*	*5.44*	*5.21*	*5.50*	*5.39*	*0.25*	*4.96*
~ of which China	14.85	15.43	15.40	15.43	16.16	15.61	0.76	5.09
Total world	**99.57**	**101.55**	**100.70**	**102.03**	**103.27**	**101.89**	**2.32**	**2.33**

Source: OPEC monthly report, April 2023
Note: 2023 = Forecast. Totals may not add up due to independent rounding*

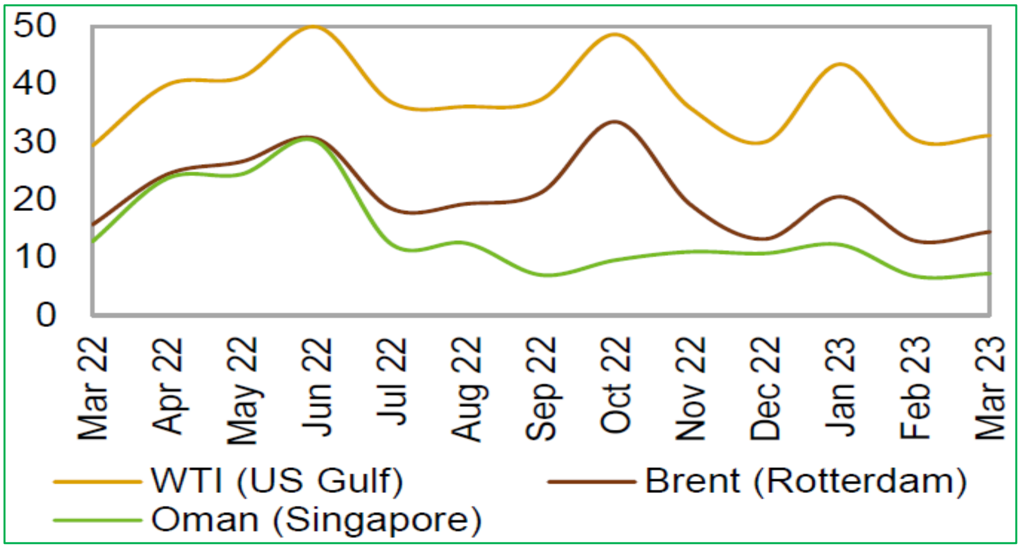
Global petroleum product prices

USGC refining margins against WTI benefitted from a mild improvement as a result of lower product availability due to the heavy maintenance season, although run rates rose in March as refiners returned online. Most of the gains in USGC product markets derived from the top and the bottom of the barrel with gasoline representing the main driver. In addition to the recent supportive supply-side dynamics, improvements in gasoline consumption levels led to a continual decline in US total gasoline inventories throughout all four weeks of March. This contributed to the products' performances and helped gasoline crack spreads continue their gradual revival from the typical winter-related lows to outperform gasoil in March. The positive outlook for gasoline markets over the upcoming summer season should boost the fuel's performance in the coming months.

Refinery margins in Rotterdam against Brent showed the largest upturn relative to those seen in other main trading hubs. Reductions in product output levels amid the heavy maintenance season led to a contraction in product balances in the region. In addition, the energy workers' strikes in France and the resulting product output disruptions with the loss of more than 700 tb/d of refining capacity in March further weighed on regional inventory levels. Consequently, total product commercial stocks in France declined significantly. Meanwhile, on a regional level, gasoil inventories at the Amsterdam-Rotterdam-Antwerp storage hub were the most affected compared to the other products and showed significant declines in March, ending the strong upward trend witnessed since December.

Refinery throughput in Europe extended its downward trend and decreased by 640 tb/d to average 9.32 mb/d according to preliminary data. Refinery margins against Brent in Europe averaged $14.41/b in March, $1.55 higher compared with a month earlier, but $1.22 lower y-o-y.

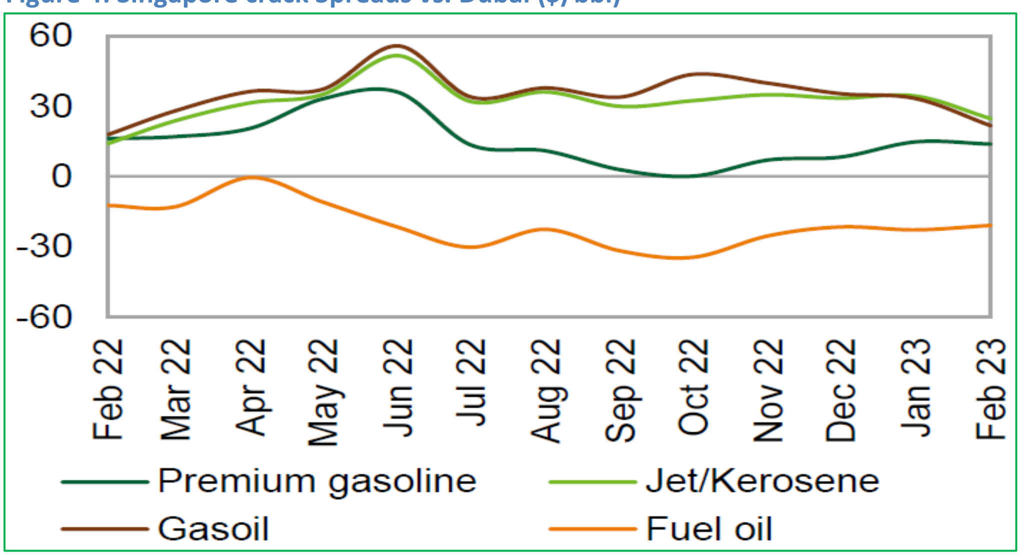
Figure 3: Refining Margins ($/bbl)



Source: Argus and OPEC

The Asian gasoline 92 crack spread increased reflecting the products' strength witnessed in the West, with the open East to West arbitrage. The Singapore gasoline crack spread against Dubai in March averaged $15.83/b, and was up $2.02 m-o-m but down $1.15 y-o-y.

Figure 4: Singapore crack Spreads vs. Dubai ($/bbl)



Source: Argus and OPEC

The Singapore gasoil crack spread lost some ground, pressured by strong volume arrivals from the Middle East. The Singapore gasoil crack spread against Oman averaged $20.43/b, down $1.23 m-o-m and $7.59 y-o-y.

Table 4: Singapore FOB, refined product prices ($/bbl) in March 2023

Singapore product prices	Price ($/b)	MoM (%) change	YoY (%) change
Naphtha	73.19	-4.9%	-34.3%
Premium gasoline (unleaded 95)	98.59	-0.8%	-24.8%
Regular gasoline (unleaded 92)	94.25	-1.7%	-26.1%
Jet/Kerosene	98.86	-7.4%	-26.4%
Gasoil/Diesel (50 ppm)	102.35	-4.5%	-28.0%
Fuel oil (180 cst 2.0% S)	95.33	-5.7%	-30.0%
Fuel oil (380 cst 3.5% S)	64.39	5.2%	-34.0%

Source: OPEC

Petroleum products consumption in India

Monthly Review:

- Overall consumption of all petroleum products in March 2023 with a volume of 20.5 MMT registered a growth of 5.60% on volume of 19.4 MMT in March 2022.
- MS (Petrol) consumption during the month of March 2023 with a volume of 3.11 MMT recorded a growth of 6.81% on volume of 2.91 MMT in March 2022.
- HSD (Diesel) consumption during the month of March 2023 with a volume of 7.79 MMT recorded a growth of 1.15% on volume of 7.70 MMT in the month of March 2022.
- LPG consumption during the month of March 2023 with a volume of 2.41 MMT registered de-growth of 2.95% over the volume of 2.48 MMT in the month of March 2022.
- ATF consumption during March 2023 with a volume of 0.688 MMT registered a growth of 26.77% over the volume of 0.543 MMT in March 2022.
- Bitumen consumption during March 2023 with a volume of 0.933 MMT registered a growth of 4.28% over volume of 0.895 MMT in the month of March 2022.
- Kerosene consumption registered de-growth of 73.73% during the month of March 2023 as compared to March 2022.

Table 5: Petroleum products consumption in India, March 2023

CONSUMPTION OF PETROLEUM PRODUCTS (P)	Consumption in '000 MT	MoM (%) change	YoY (%) change
LPG	2,406	0.6%	-2.9%
Naphtha	1,148	8.2%	3.3%
MS	3,107	11.9%	6.8%
ATF	688	10.4%	26.8%
SKO	30	-9.1%	-73.7%
HSD	7,795	11.4%	1.1%
LDO	79	41.1%	-4.2%
Lubricants & Greases	437	25.6%	-7.1%
FO & LSHS	584	2.6%	0.6%
Bitumen	933	16.5%	4.3%
Petroleum coke	1,427	-4.4%	6.9%
Others	1,862	38.2%	57.3%
TOTAL	**20,496**	**10.8%**	**5.6%**

Source: PPAC

Natural Gas Market

Natural Gas Price – Monthly Review

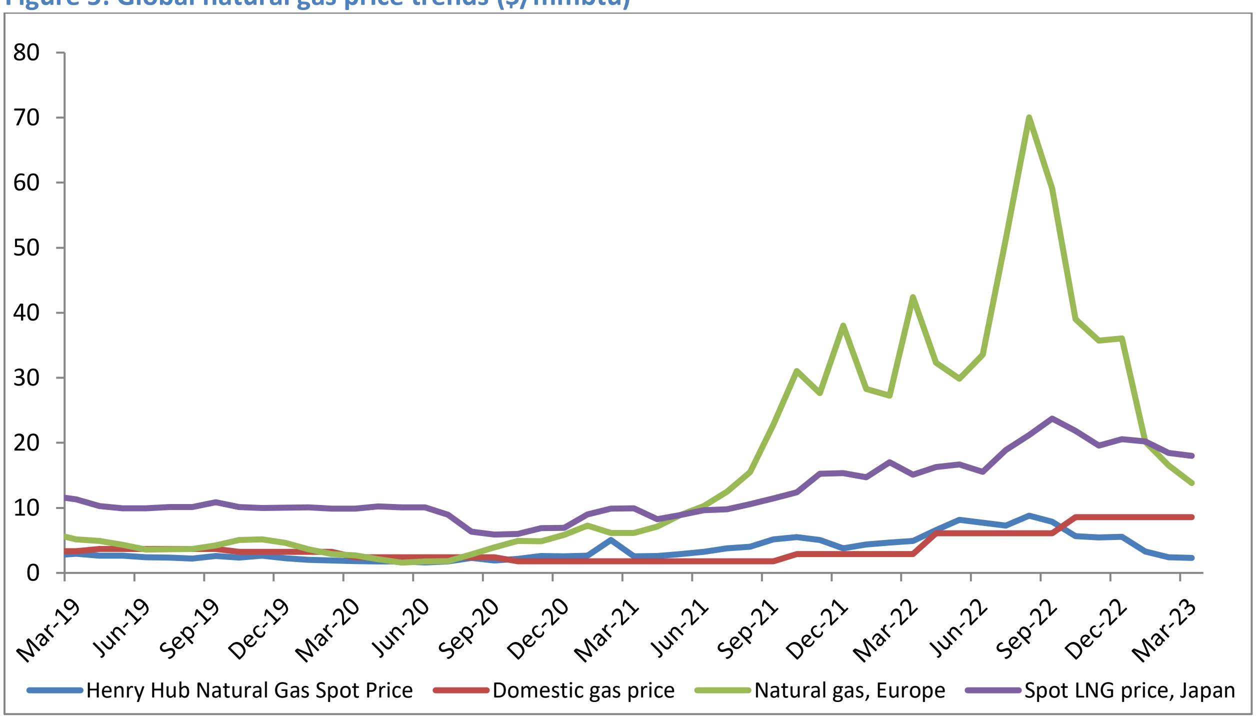
- Natural gas spot prices at the U.S. Henry Hub benchmark averaged $2.31 per million British thermal units (MMBtu) in March 2023. Natural gas prices started to decrease as plenty of natural gas is in storage to meet the demand and lower-than-average withdrawals of natural gas from storage in the first quarter of 2023 (1Q23) resulted in natural gas inventories rising above the five-year average and contributed to falling natural gas prices.
- The natural gas spot price at the Title Transfer Facility (TTF) in the Netherlands in Europe traded at an average of $13.81 per MMBtu. Price of natural gas at the Dutch Title Transfer Facility (TTF) decreased due to warmer than usual weather plus Governments across the EU also adopted several measures to reduce local consumption, including switching off streetlights and hot water in public buildings.
- Japan Liquefied Natural Gas Import Price averaged at $18.00 per MMBtu for March 2023, down from $18.42 per MMBtu in February 2023. Japan's Ministry of Economy, Trade and Industry (METI) is planning a strategic LNG reserve to ensure the country has enough natural gas to meet domestic demand as global competition ramps up. METI's proposal is primarily aimed at preventing gas shortages and preparing Japan, one of the world's largest buyers of liquefied natural gas, for battling Europe for cargoes in the years ahead as the continent displaces Russian imports.
- The price of domestically produced natural gas is $8.57 per million British thermal unit (MMBtu) from October 1, 2022 to March 31, 2023. The price of domestic gas price has been hiked

by 40% from the previous revision which was $6.1 per MMBtu for April 1, 2022, to September 30, 2022. The domestic gas price increase was driven by the significant run-up in the prices of gas at global gas hubs. Further, the maximum sale price allowed to natural gas production from deep-water, ultra-deep-water, high pressure and high-temperature discoveries was increased from $9.92 per MMBtu to $12.46 per MMBtu.

- The Union Cabinet has approved a new formula for pricing of natural gas and imposed cap or ceiling price on the same. Natural gas produced from legacy or old fields, known as APM gas, will now be indexed to crude oil prices. From April 1, APM gas will be priced at 10 per cent of the price of basket of crude oil that India imports. The rate such arrived at however will be capped at USD 6.5 per MMBTU as against current gas price of USD 8.57 per MMBTU. The price such arrived at will also have a floor of USD 4 per MMBTU.

  Further, in accordance with MoP&NG, Govt. of India, pricing freedom for gas being produced from discoveries in Deepwater, Ultra Deepwater and High Pressure-High Temperature areas, the gas price ceiling for the period 1st April, 2023 - 30th September, 2023 was notified as US$ 12.12/MMBTU on Gross Calorific Value (GCV) basis as per notification dated 31st March, 2023. However, on 7th April, 2023, the price of domestic natural gas for the period 1st April 2023 to 7th April 2023 was notified as US$ 9.16/MMBTU on GCV basis. Subsequently, on 30th April, 2023, in accordance with MoP&NG 's notification, the price of domestic natural gas for the period 1st May 2023 to 31st May 2023 was notified as US$ 8.27/MMBTU on GCV basis.

Figure 5: Global natural gas price trends ($/mmbtu)



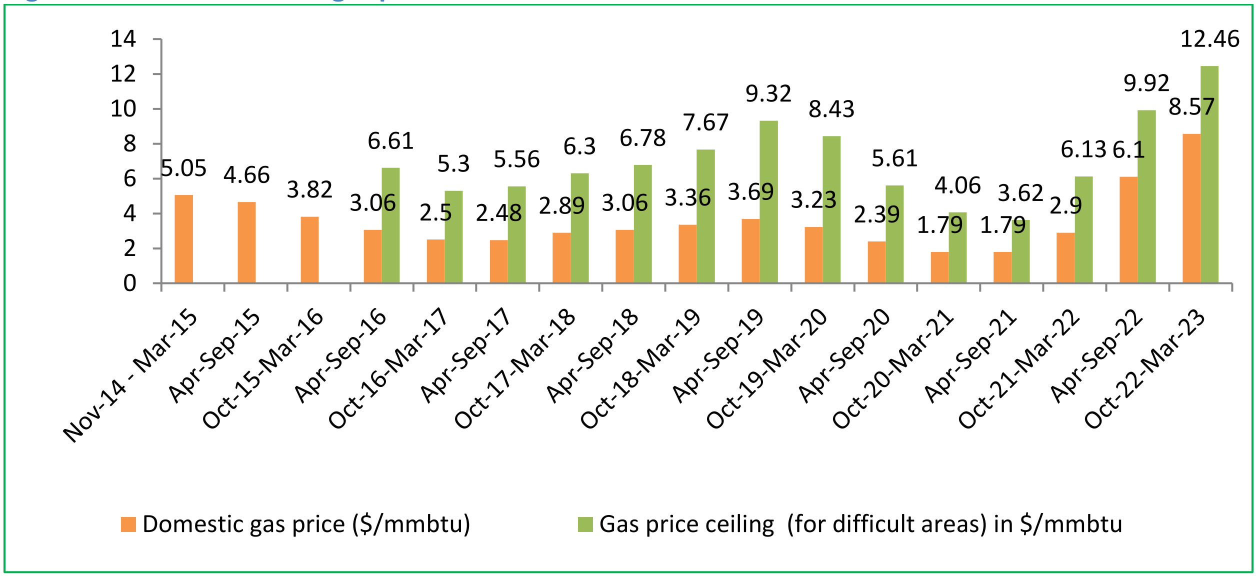
Source: EIA, World Bank

Table 6: Gas price, March 2023

Natural Gas	Price ($/MMBTU)	MoM (%) change	YoY (%) change
India, Domestic gas price	8.57	0%	195.5%
India, Gas price ceiling – difficult areas	12.46	0%	103.3%
Henry Hub	2.31	-2.9%	-52.9%
Natural Gas, Europe	13.81	-16.5%	-67.4%
Liquefied Natural Gas, Japan	18.00	-2.3%	19.1%

Source: EIA, PPAC, World Bank

Figure 6: Domestic natural gas price



Source: PPAC

Indian Gas Market

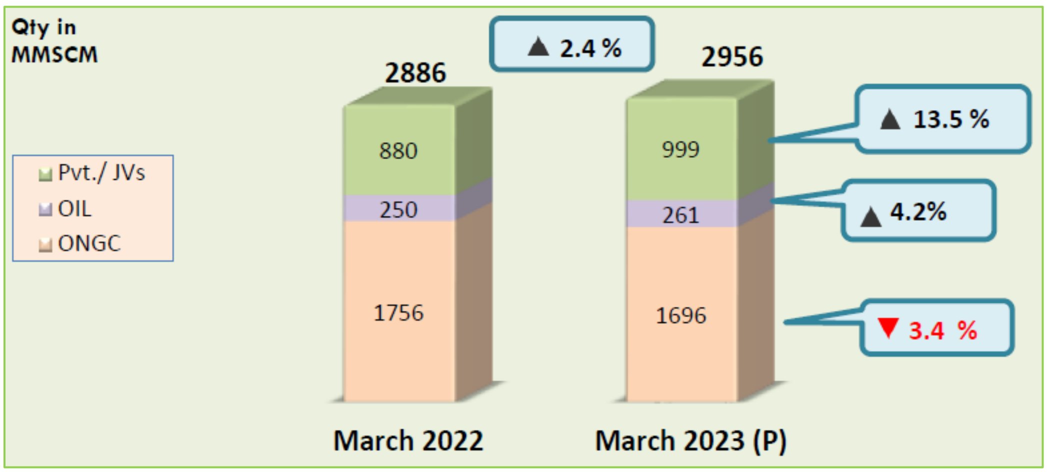
- Gross production of natural gas for the month of March 2023 was 2,956 MMSCM (increase of 2.4% over the corresponding month of the previous year).
- Total imports of LNG (provisional) during the month of March 2023 were 2,237 MMSCM (P) (decrease of 15.2% over the corresponding month of the previous year).
- Natural gas available for sale during March 2023 was 4,670 MMSCM (decrease of 5.2% over the corresponding month of the previous year).
- Total consumption during March 2023 was 5,706 MMSCM (provisional). Major consumers were fertilizer (33%), City Gas Distribution (CGD) (22%), Power (13%), Refinery (6%) and Petrochemicals (5%).

Monthly Report on Natural gas production, imports and consumption – March 2023

1. Domestic Natural Gas Gross Production:

Domestic natural gas gross production for the month of March 2023 was 2,956 MMSCM (increase of 2.4% over the corresponding month of the previous year).

Figure 7: Domestic natural gas Gross production (Qty in MMSCM)

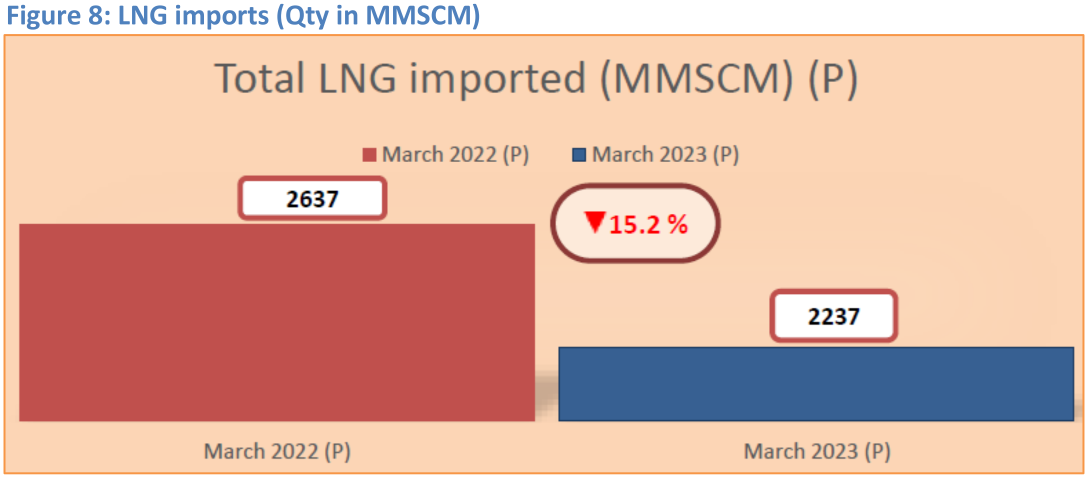


Source: PPAC

2. LNG imports:

Total imports of LNG (provisional) during the month of March 2023 were 2,237 MMSCM (decrease of 15.2%) over the corresponding month of the previous year 2,637 MMSCM.

Figure 8: LNG imports (Qty in MMSCM)

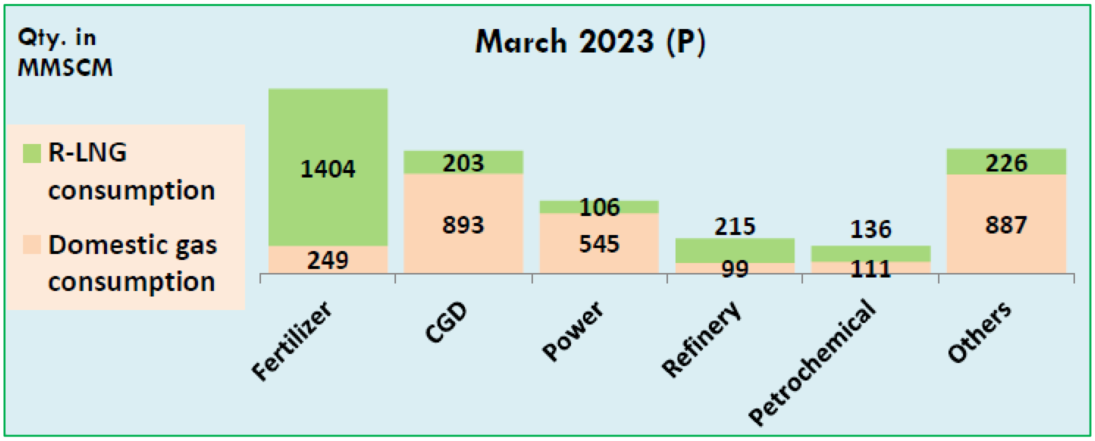


Source: PPAC

Sectoral Consumption of Natural Gas:

Major consumers were fertilizer, CGD, power, refinery, petrochemicals among others.

Figure 9: Sectoral Consumption of Natural Gas (Qty in MMSCM) in March 2023



Source: PPAC

Key developments in Oil & Gas sector

- **Monthly Production Report for March, 2023**

1. Production of Crude Oil

Indigenous crude oil and condensate production during March 2023 was down by 2.8% than that of March 2022 as compared to a de-growth of 4.9% during February 2022. OIL registered a growth of 7.2% and ONGC registered a de-growth of 1.5% during March 2023 as compared to March 2022. PSC registered de-growth of 11.1% during March 2023 as compared to March 2022. De-growth of 1.7% was registered in the total crude oil and condensate production during April-March 2023 over the corresponding period of the previous year.

2. Production of Natural Gas

Gross production of natural gas for the month of March 2023 (P) was 2956 MMSCM which was higher by 2.4% compared with the corresponding month of the previous year. The cumulative gross production of natural gas of 34450 MMSCM for the current financial year till March 2023 was higher by 1.3% compared with the corresponding period of the previous year.

3. Crude Oil Processed (Crude Throughput)

Crude oil processed during March 2023 was 23.0 MMT, which was 3.0% higher than March 2022 as compared to a growth of 2.0% during February 2022. Growth of 5.6% was registered in the total crude oil processing during April- March 2023 over the corresponding period of the previous year.

4. Production of Petroleum Products

Production of petroleum products saw a growth of 1.5% during March 2023 over March 2022 as compared to a growth of 3.3% during February 2022. Growth of 4.8% was registered in the total POL production during April-March 2023 over the corresponding period of the previous year.

Key Policy developments in Energy sector

Cabinet approved revised domestic gas pricing guidelines

The Cabinet Committee on Economic Affairs, chaired by the Prime Minister Shri Narendra Modi, has approved the revised domestic natural gas pricing guidelines for gas produced from nomination fields of ONGC/OIL, New Exploration Licensing Policy (NELP) blocks and pre-NELP blocks, where Production Sharing Contract (PSC) provides for Government's approval of prices. The price of such natural gas shall be 10% of the monthly average of Indian Crude Basket and shall be notified on a monthly basis. For the gas produced by ONGC & OIL from their nomination blocks, the Administered Price Mechanism (APM) price shall be subject to a floor and a ceiling. Gas produced from new wells or well interventions in the nomination fields of ONGC & OIL, would be allowed a premium of 20% over the APM price.

These reforms are a continuation of the various initiatives taken by Government of India to protect the interests of consumers by reducing the impact of increase in international gas prices on gas prices in India by significantly increasing the domestic gas allocation to City Gas Distribution sector.

The reforms will lead to significant decrease in prices of Piped Natural Gas (PNG) for households and Compressed Natural Gas (CNG) for transport. The reduced prices shall also lower the fertilizer subsidy burden and help the domestic power sector. With the provision of a floor in gas prices as well as provision for 20% premium for new wells, this reform will incentivize ONGC and OIL to make additional long-term investments in the upstream sector leading to greater production of natural gas and consequent reduction in import dependence of fossil fuels. The revised pricing guidelines will also promote lower carbon footprint through the growth of gas-based economy.

Govt. increased windfall tax on crude oil; export duty on diesel removed

The government has increased windfall tax on crude oil to Rs 6,400 per tonne from nil. The export duty on diesel has been cut to nil from ₹0.50 per litre. However, the special additional excise duty on petrol and aviation turbine fuel (ATF) will remain unchanged at nil.

India first imposed windfall profit taxes on July 1, joining a growing number of nations that tax super normal profits of energy companies. At that time, export duties of ₹6 per litre ($12 per barrel) each were levied on petrol and ATF and ₹13 a litre ($26 a barrel) on diesel. A ₹23,250 per tonne ($40 per barrel) windfall profit tax on domestic crude production was also levied. The export tax on petrol has since been scrapped. The tax rates are reviewed every fortnight based on average oil prices in the country.

Government declares plan to add 50 GW of renewable energy capacity annually for next 5 years to achieve the target of 500 GW by 2030

The Government has decided to invite bids for 50 GW of renewable energy capacity annually for the next five years i.e., from Financial Year 2023-24 till Financial Year 2027-28. These annual bids of ISTS (Inter-State Transmission) connected renewable energy capacity will also include setting up of wind power capacity of at least 10 GW per annum. The plan finalized by Ministry of New & Renewable Energy (MNRE) at a meeting chaired by Union Minister for Power & NRE Shri R. K. Singh, is in accordance with Prime Minister's announcement at COP26, of achieving 500 GW of installed electricity capacity from non-fossil fuel (Renewable Energy + Nuclear) sources by 2030. India currently has a total renewable energy capacity of 168.96 GW (as on 28th February 2023) with about 82 GW at various stages of implementation and about 41 GW under tendering stage. This includes 64.38 GW Solar Power, 51.79 GW Hydro Power, 42.02 GW Wind Power and 10.77 GW Bio Power.

Since Renewable Energy (RE) projects take around 18-24 months for commissioning, the bid plan will add 250 GW of renewable energy and ensure 500 GW of installed capacity by 2030. The Ministry of Power is already working on upgrading and adding the transmission system capacity for evacuating 500 GW of electricity from non-fossil fuel.

In addition to this, the Ministry has declared a quarterly plan of the bids for FY 2023-24, which comprises of bids for at least 15 GW of renewable energy capacity in each of the first and second quarters of the financial year (April-June 2023 and July-September 2023 respectively), and at least 10 GW in each of the third and fourth quarters of the financial year (Oct-December 2023 and January-March 2024 respectively).

This capacity addition is over and above the RE capacities that would come up under schemes like Rooftop solar and PM-KUSUM of the Ministry, under which, bids issued directly by various States & also capacities that may come up under Open Access Rules.

NTPC and Chempolis India signed a Memorandum of Understanding (MoU) to collaborate on Feasibility Study for setting Bamboo-based Bio-Refinery at Bongaigaon, Assam

NTPC and Chempolis India, a Fortum group associate company and a leading Finnish bio-refining technology provider, signed a Memorandum of Understanding (MoU) to explore the feasibility of setting up a Bamboo-based Bio-Refinery in Bongaigaon. Chempolis will work with NTPC to conduct the feasibility study for the project which shall utilize bamboo for the production of 2G Ethanol, Bio-Coal for thermal power plant & other value-added products.

The proposed Bio-Refinery is planned as an integration project with NTPC Bongaigaon Power Plant, where all utility requirements such as steam, power, etc., shall be supplied from the power plant and the Bio-Coal produced by the Bio-Refinery shall partly replace coal in the power plant, effectively converting 5% of the generation of the power plant to green. The project will support NTPC's decarbonization efforts, create job opportunities and build a sustainable model by promoting the use of locally available resources.

Government finalizes the revised framework of Day-Ahead National level Merit Order Dispatch Mechanism in power sector

The Ministry of Power has finalized a revised structure of Day-Ahead National level Merit Order Despatch Mechanism with a view to lower the overall cost of electricity generation, which will translate into lower electricity prices for consumers. As per the revised mechanism, the Merit Order for cheapest generating resources across the country to meet the system demand, would be, finalized a day in advance as against 1.5 hours in the existing system. This will result in better planning for generating units and cost optimization. Moreover, the revised mechanism will also enlarge the scope of present mechanism by including all the regional entity thermal power plants and subsequently all the intra-state thermal generators. In the existing system, only the NTPC thermal stations were part of the merit order despatch.

The existing mechanism of merit order dispatch at real time was made operational in April 2019. This optimized the total variable cost of generation pan-India, while meeting technical and grid security constraints. The existing mechanism resulted in reduction of variable cost on pan-India basis to the tune of ₹ 2300 Crore and these benefits were being shared with generators and their beneficiaries ultimately reducing the cost of electricity to consumers.

The gains out of the proposed Day-Ahead National Merit Order Dispatch Mechanism would be shared between generating stations and their consumers. This will result in increased annual savings for the electricity consumers. This will also help the States in maintaining resource adequacy in a cost-effective manner with less carbon footprints. The Day-Ahead National Merit Order Dispatch Mechanism will be implemented by CERC through necessary regulatory process and it will be operated by GRID –INDIA at national level.

2nd Energy Transitions Working Group (ETWG) meeting concludes successfully in Gandhinagar, Gujarat with focus on collaboration, global cooperation, and commitment for clean energy transition

The 2nd Energy Transitions Working Group Meeting (ETWG) under India’s G20 Presidency concluded successfully in Gandhinagar, on Apr. 3, 2023. The two-day meeting witnessed participation of over 100 delegates from G20 member countries, 10 special invitee countries and 14 International Organisations. The Meeting was chaired by Shri Alok Kumar, ETWG Chair and Secretary, Ministry of Power, Govt. of India. Shri Bhupinder Singh Bhalla, Secretary, Ministry of New and Renewable Energy; Shri Vivek Bharadwaj, Secretary, Ministry of Mines; and Shri Amrit Lal Meena, Secretary, Ministry of Coal, were also part of the Meeting and deliberations.

Building on the discussions from the 1st ETWG (held in Bengaluru from Feb. 5-7, 2023), Member countries engaged in constructive discussions and deliberations focusing on key priority areas, outlined under India’s Presidency. The proposed formation of Global Biofuels Alliance received wide-ranging support from member countries. The other key point of discussion was low-cost financing for energy transition, where member countries discussed about important role of international financial structure including raising the ambitions of multilateral financial institutions and the importance of coordinating actions with Sustainable Finance Working Group, initiated under India’s G20 Presidency.

Member countries also reaffirmed their commitment to energy transition through addressing technology gaps, and there was broad consensus amongst members to align with other global organizations such as Clean Energy Ministerial (CEM), Mission Innovation (MI) and RD20 to achieve tangible outcomes. Protecting intellectual property rights in the context of technology transfer was also emphasized. It was also agreed to continue with a focus on deployment of clean mature technologies such as Solar PV and Offshore Wind.

On the sidelines, the Meeting was complemented by three side events – 'Green Hydrogen – Advancing Net Zero Pathways,' 'Diversified Renewable Energy Supply Chains for Advancing Energy Transitions' and 'Accelerating Cooling as a key enabler towards energy transition.' The discussions focused on policy, regulatory, and financial frameworks and to promote cooperation amongst G20 nations.

The event also featured an exhibition where India's first H2 Internal Combustion Engine (ICE) truck was displayed.

The 2nd Energy Transitions Working Group Meeting ended on a note of collaboration and a commitment by member countries to advance the cause of global cooperation in clean energy transition. The discussions during this Meeting will be taken forward in the 3rd Energy Transitions Working Group Meeting, scheduled to take place in Mumbai from May 15-17, 2023.

Policy mechanisms, common protocol for hydrogen certification and regulatory frameworks along with collaborations between countries, could accelerate a green hydrogen ecosystem, says Shri B. S. Bhalla, Secretary, MNRE

On the side-lines of the second Energy Transition Working Group meeting, the Ministry of New and Renewable Energy (MNRE) hosted the side event "Green Hydrogen - Advancing Net-Zero Pathways." Green hydrogen is anticipated to play a crucial role in decarbonizing hard-to-abate sectors and achieving G20 nations' net-zero goals.

The side event, conducted in partnership with Solar Energy Corporation of India (SECI) and International Solar Alliance (ISA) with World Resources Institute India (WRI India) as knowledge partner, saw active participation by international research organizations, industry participants, regulatory bodies, and other key stakeholders. The discussions were centered around policy, regulatory, and financial frameworks to accelerate the deployment of green hydrogen and promote cooperation amongst G20 nations. The event also featured an exhibition where India's first H2 Internal Combustion Engine (ICE) truck was displayed.

Speaking at the inaugural session in his keynote address Mr. Bhupinder Singh Bhalla, Secretary, MNRE, said, "Creating policy mechanisms and regulatory frameworks along with establishing collaborations between countries, could accelerate a green hydrogen ecosystem. Developing consensus on a common framework for hydrogen certification would be extremely critical to enable global hydrogen trade. Achieving this will be of paramount importance as part of G20 deliberations and discussions."

Giving a global perspective on green hydrogen Ms. Gauri Singh - Deputy Director General, IRENA, said "At present about 100 MTs of hydrogen is produced globally, and 98% of that comes from fossil fuels. The world's current power consumption, 21,000 TWh, must be generated six times over to switch to a "green hydrogen economy."

Mr. Madhav Pai, Interim CEO & Program Executive Director - Sustainable Cities & Transport, WRI India said, “Green hydrogen is poised to play a vital role in the cross-sectoral decarbonization of hard-to-abate sectors and is therefore a crucial element for a sustainable, low-carbon future. There exist unique prospects for the world's leading economies to engage in cooperative and collaborative efforts critical for addressing economic and technical challenges and building a resilient global hydrogen value chain.”

The growing efforts to diversify and advance the fuel basket will not only result in environmental benefits but would also be accompanied by energy security and reduced import dependency. To meet clean energy transition objectives, G20 nations will require adoption of multi-pronged strategies which should include renewable energy, green hydrogen, and its derivatives. Substantive and coordinated global efforts are required to position green hydrogen as a key lever for energy transition, especially for hard-to-abate industrial sectors, long haul and heavy transport (including aviation and shipping), and other potential applications including heating and energy storage.

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