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POLICY PULSE

A MONTHLY NEWSLETTER



In This Volume









Bilateral Discussions





FIRST TAKE

Overview

The World Trade Organization (WTO) has finally delivered a result. For most supporters of multilateral trade agreements this is big news. Many are of the view that the deal is not significant but many others will agree that this is a step forward for the multilateral trading arrangements.

On the free trade agreements front, India has progressed its discussions with the UK to finalise a deal by Diwali this year. The next Round of discussions will be held in New Delhi in the last week of July. Importantly, the negotiations with the European Union have commenced again and it is understood that the EU has already shred 18 chapters to the Indian negotiators for possible inclusion into the FTA. Give some different views India and EU have on several issues these negotiations are not going to be easy. The two sides hope to wrap up the negotiations on most issues in the next six to eight months.

For readers following the WTO dispute cases initiated against the US tariffs on imported steel and aluminium products, the chair of the WTO panels who were reviewing the complaints filed by India, China, Russia, Norway, Switzerland and Turkey have informed the parties that the rulings in all six cases are now expected to be circulated "no later than the last quarter of 2022."

During the meeting of the Dispute Settlement Board (DSB) the proposal to start the selection process for the vacancies on the Appellate Board was blocked by the United States of America. This is the 55th time this proposal has been blocked in the last few years. However, many member countries welcomed the commitment made by members at the WTO's 12th Ministerial Conference (MC12) to engage in discussions with the aim of having a fully functioning WTO dispute system in place by 2024.

This issue of the Policy Pulse covers all regular features and we look forward to your feedback.

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ECONOMIC SNAPSHOT

GLOBAL ECONOMY

As per the World Bank's latest Global Economic Prospects report, "compounding the damage from the COVID-19 pandemic, the Russian invasion of Ukraine has magnified the slowdown in the global economy, which is entering what could become a protracted period of feeble growth and elevated inflation".

World Bank says that global growth is expected to slump from 5.7% in 2021 to 2.9% in 2022 significantly lower than 4.1% that was anticipated in January 2022. It is expected to hover around that pace over 2023-24, as the war in Ukraine "disrupts activity, investment, and trade in the near term." As a result of the damage from the pandemic and the war, the level of per capita income in developing economies this year will be nearly 5% below its pre-pandemic level.

Global inflation is expected to moderate next year but it will likely remain above inflation targets in many economies. World Bank says that "if inflation remains elevated, a repeat of the resolution of the earlier stagflation episode could translate into a sharp global downturn along with financial crises in some emerging market and developing economies".

Growth in advanced economies is projected to sharply decelerate from 5.1% in 2021 to 2.6% in 2022, 1.2% point below projections in January 2022. Growth is expected to further moderate to 2.2% in 2023, largely reflecting the further unwinding of the fiscal and monetary policy support provided during the pandemic.

Among emerging market and developing economies, growth is also projected to fall from 6.6% in 2021 to 3.4% in 2022 well below the annual average of 4.8% over 2011-2019. The negative spill overs from the war will more than offset any near-term boost to some commodity exporters from higher energy prices. Forecasts for 2022 growth have been revised down in nearly 70% of EMDEs, including most commodity importing countries as well as four-fifths of low-income countries.

Regional Outlooks:

- **❖ East Asia and Pacific:** Growth is projected to decelerate to 4.4% in 2022 before increasing to 5.2% in 2023.
- ❖ Europe and Central Asia: The regional economy is expected to shrink by 2.9% in 2022 year before growing by 1.5% in 2023. For more, see regional overview.
- **❖ Latin America and the Caribbean**: Growth is projected to slow to 2.5% in 2022 and 1.9% in 2023.
- ❖ Middle East and North Africa: Growth is forecast to accelerate to 5.3% in 2022 before slowing to 3.6% in 2023.
- **❖ South Asia:** Growth is projected to slow to 6.8% in 2022 and 5.8% in 2023.
- Sub-Saharan Africa: Growth is forecast to moderate to 3.7% in 2022 and rise to 3.8% in 2023.

World Bank highlights the need for decisive global and national policy action to avert the worst consequences of the war in Ukraine for the global economy. This will involve global efforts to limit the harm to those affected by the war, to cushion the blow from surging oil and food prices, to speed up debt relief, and to expand vaccinations in low-income countries. It will also involve vigorous supply responses at the national level while keeping global markets functioning commodity well. Policymakers, moreover, should refrain from distortionary policies such as price controls, subsidies, and export bans, which could worsen the recent increase in commodity prices. Against the challenging backdrop of higher inflation, weaker growth, tighter financial conditions, and limited fiscal policy space, governments will need to reprioritize spending relief toward targeted for vulnerable populations.

GDP Projections (%)	2019	2020	2021e	2022f	2023f
World	2.6	-3.3	5.7	2.9	3.0
Advanced economies	1.7	-4.6	5.1	2.6	2.2
United States	2.3	-3.4	5.7	2.5	2.4
Euro area	1.6	-6.4	5.4	2.5	1.9
Japan	-0.2	-4.6	1.7	1.7	1.3
Emerging market and developing economies	3.8	-1.6	6.6	3.4	4.2
East Asia and Pacific	5.8	1.2	7.2	4.4	5.2
China	6.0	2.2	8.1	4.3	5.2
Indonesia	5.0	-2.1	3.7	5.1	5.3
Thailand	2.2	-6.2	1.6	2.9	4.3
Europe and Central Asia	2.7	-1.9	6.5	-2.9	1.5
Russian Federation	2.2	-2.7	4.7	-8.9	-2.0
Turkey	0.9	1.8	11.0	2.3	3.2
Poland	4.7	-2.2	5.9	3.9	3.6
Latin America and the Caribbean	8.0	-6.4	6.7	2.5	1.9
Brazil	1.2	-3.9	4.6	1.5	0.8
Mexico	-0.2	-8.2	4.8	1.7	1.9
Argentina	-2.0	-9.9	10.3	4.5	2.5
Middle East and North Africa	0.9	-3.7	3.4	5.3	3.6
Saudi Arabia	0.3	-4.1	3.2	7.0	3.8
Iran, Islamic Rep	-6.8	3.4	4.1	3.7	2.7
Egypt, Arab Rep	5.6	3.6	3.3	6.1	4.8
South Asia	4.1	-4.5	7.6	6.8	5.8
India	3.7	-6.6	8.7	7.5	7.1
Pakistan	3.1	-0.9	5.7	4.3	4.0
Bangladesh	7.9	3.4	6.9	6.4	6.7
Sub-Saharan Africa	2.6	-2.0	4.2	3.7	3.8
Nigeria	2.2	-1.8	3.6	3.4	3.2
South Africa	0.1	-6.4	4.9	2.1	1.5
Angola	-0.7	-5.2	0.7	3.1	3.3
World trade volume	1.4	-8.0	10.3	4.0	4.3
Commodity prices					
Oil price	-9.9	-33.9	66.5	42.0	-8.0
Non-energy commodity price index	-4.2	3.3	32.7	17.9	-8.1

Source: World Bank

INDIAN ECONOMY

The International Monetary Fund (IMF) cut India's GDP growth projection for 2022 to 8.2% from 9% in its World Economic Outlook report. The growth projection for 2023 will be 6.9%. Fitch Ratings also lowered India's growth forecast for the financial year 2022-23 to 7.8% from its earlier projection of 8.5% announced in March, citing the inflationary impacts of the global commodity price shock.

World Bank says that India's growth slowed in the first half of 2022 as activity was disrupted both by a surge in COVID-19 cases, accompanied by more-targeted mobility restrictions, and by the war in Ukraine. The recovery is facing headwinds from rising inflation. The unemployment rate has declined to levels seen prior to the pandemic, but the labour force participation rate remains below prepandemic levels and workers have shifted to lower-paying and less-secure jobs. India's growth in fiscal year 2021-22, which ended in March 2022, was 8.7%, with the release of pent-up demand late last year following the mid-2021 wave of the pandemic offset by weakness in early 2022.

In India, growth is forecast to edge down to 7.5% in fiscal year 2022/23, with headwinds from rising inflation, supply chain disruptions, and geopolitical tensions offsetting buoyancy in the recovery of services consumption from the pandemic. Growth will also be supported by fixed investment undertaken by the private sector and by the government, which has introduced incentives and reforms to improve the business climate. This forecast reflects a 1.2%-point downward revision of growth from the January projection. Growth is expected to slow further to 7.1% in 2023/24 back towards its longer-run potential.

Performance of Key Indicators

India's combined index of eight core industries saw a huge jump in the month of May as it grew by 18.1%, compared to 9.3% in April 2022, driven by steel, cement, and natural gas, according to the data released by Ministry of Commerce & Industry. The production of cement, coal, fertilizers and electricity industries recorded high growth in May 2022 over the corresponding period of last year.

Coal production increased by 25.1% in May, 2022 over May, 2021. Its cumulative index increased by 26.9% during April to May, 2022-23 over corresponding period of the previous year.

Crude Oil production increased by 4.6% in May, 2022 over May, 2021. Its cumulative index increased by 1.8% during April to May, 2022-23 over the corresponding period of previous year.

Natural Gas production increased by 7.0% in May, 2022 over May, 2021. Its cumulative index increased by 6.7% during April to May, 2022-23 over the corresponding period of previous year.

Petroleum Refinery production increased by 16.7% in May, 2022 over May, 2021. Its cumulative index increased by 12.8% during April to May, 2022-23 over the corresponding period of previous year.

Fertilizers production increased by 22.8% in May, 2022 over May, 2021. Its cumulative index increased by 16.3% during April to May, 2022-23 over the corresponding period of previous year.

Steel production increased by 15.0% in May, 2022 over May, 2021. Its cumulative index increased by 8.4% during April to May, 2022-23 over the corresponding period of previous year.

Cement production increased by 26.3% in May, 2022 over May, 2021. Its cumulative index increased by 15.9% during April to May, 2022-23 over the corresponding period of previous year. Electricity generation increased by 22.0% in May, 2022 over May, 2021. Its cumulative index increased by 16.7% during April to May, 2022-23 over the corresponding period of previous year.

India's factory output, measured in terms of Index of Industrial Production (IIP), accelerated by 7.1% in April as against 1.9% in March 2022. The manufacturing sector recorded a growth of 6.3% in April. The mining sector rose by 7.8% and the electricity sector climbed 11.8%.

As per Ministry of Finance, India recorded its second highest monthly gross GST revenues in June at INR 144,616 crore (US\$ 18.2 billion), 56% more than a year ago when the 2nd COVID wave had hit economic activity. Revenues from import of goods rose 55%, while domestic transactions and import of services were 56% higher in the month. GST collections hit INR 11,018 crore (US\$ 1.3 billion), including INR 1,197 crore (US\$ 0.15 billion) collected on import of goods, the highest level since the introduction of GST five years ago. This is the fourth successive month since March that monthly GST revenues have crossed the INR 1.40 lakh crore (US\$ 17.6 billion) mark, and the fifth such occasion overall.

According to data released by the Ministry of Commerce and Industry, India's overall exports (Merchandise and Services combined) in May 2022 were US\$ 62.21 Billion, exhibiting a positive growth of 24.03% over the same period last year. The merchandise exports in May 2022 were US\$ 38.94 Billion, as compared to US\$ 32.30 Billion in May 2021, exhibiting a positive growth of 20.55%. The estimated value of services export for May 2022 were US\$ 23.28 Billion, exhibiting a positive growth of 30.32% vis-a-vis May 2021 (US\$ 17.86 Billion).

India's overall exports (Merchandise and Services combined) in April-May 2022 were US\$ 124.59 Billion, exhibiting a positive growth of 25.90% over the same period last. The merchandise exports for the period April-May 2022 were US\$ 78.72 Billion as against US\$ 63.05 Billion during the period April-May 2021, registering a positive growth of 24.86%. The estimated value of services export for April-May 2022 were US\$ 45.87 Billion, exhibiting a

positive growth of 27.71% vis-a-vis April-May 2021 (US\$ 35.92 Billion).

The overall imports (Merchandise and Services combined) in May 2022 were US\$ 77.65 Billion, exhibiting a positive growth of 59.19% over the same period last year. The overall imports in April-May 2022 were US\$ 151.89 Billion, exhibiting a positive growth of 45.44% over the same period last year.

REGULATIONS WATCH Notifications at the WTO

Article XX of the General Agreement on Tariffs and Trade (GATT) allows governments to enact trade measures to protect human, animal, or plant life or health, provided that the provisions do not discriminate and are not used as disguised protectionism. In addition, two specific World Trade Organization (WTO) agreements deal with food safety, animal and plant health and safety, and product standards in general.

The Sanitary and Phytosanitary Measures (SPS) and technical Barriers to Trade (TBT) Agreements aim to ensure that these requirements do not create unnecessary obstacles to international trade. Under the WTO, members are required to notify other Members before adopting new measures if these are likely to affect international trade and provide an opportunity for comments.

The WTO Agreement on the Application of Sanitary and Phytosanitary Measures (the SPS Agreement) lays out the basic rules on food safety and on animal and plant health standards. It allows countries to set their own standards, but it stipulates those regulations must be based on science and should be applied only to the extent necessary to protect human, animal, or plant life or health.

The TBT Agreement seeks to ensure that technical regulations, standards, and testing and certification procedures do not create unnecessary obstacles. The agreement does recognize countries' rights to adopt the standards they consider appropriate—for example, to protect human, animal, or plant life or health; to safeguard the environment; or to meet other consumer interests. In any case, whatever regulations countries use should not discriminate. Under the agreement, the procedures used to decide whether a product conforms with relevant standards have to be

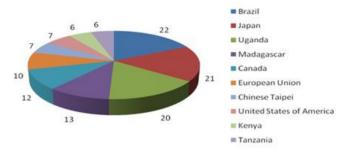
fair and equitable, and any methods that would give domestically produced goods an unfair advantage are discouraged.

SPS Notifications

The total numbers of SPS Notifications issued by the various WTO-Member Countries in 01st June 2022 to 30th June 2022 are 227 of which 182 are relevant to India. Out of 182 notifications, 73 notifications were the addendums of draft regulations notified earlier in the WTO.

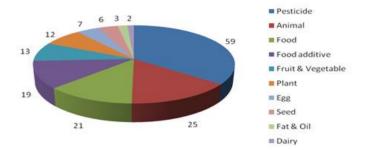
Country-wise Information (Top 10)

Out of the total 182 notifications, Brazil issued 22 notifications, followed by Japan, Uganda, Madagascar, Canada, European Union, Chinese Taipei, United States of America, Kenya and Tanzania with 21, 20, 13, 12, 10, 7, 7, 6 and 6 notifications, respectively. The remaining 58 notifications were from other WTO Member country.



Product-wise Information (Top 10)

Out of the total 182 Notifications, 59 related to pesticide, 25 related to animal, 21 related to food, 19 related to food additive, 13 related to fruit & vegetable, 12 related to plant, 7 related to egg, 6 related to seed, 3 related to fat & oil, 2 related to dairy and 15 notifications were related to other products.

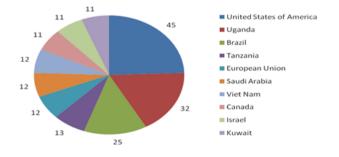


TBT Notifications

The total numbers of TBT Notifications issued by the various WTO-Member Countries from 01st June 2022 to 30th June 2022 were 352. Out of 352 notifications, 112 notifications were the addendums of draft regulations notified earlier in the WTO.

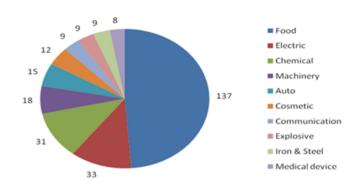
Country-wise Information (Top 10)

Out of the total 352 notifications, United States of America issued 45 notifications, followed by Uganda, Brazil, Tanzania, European Union, Saudi Arabia, Viet Nam, Canada, Israel and Kuwait with 32, 25, 13, 12, 12, 12, 11, 11 and 11 notifications, respectively. The remaining 168 notification were from other WTO Member country.



❖ Product-wise Information (Top 10)

Out of the total 352 Notifications, 137 related to food, 37 related to electric, 33 related to chemical, 18 related to machinery, 15 related to auto, 12 related to cosmetic, 9 related to communication, 9 related to explosive, 9 related to iron & steel, 8 related to medical device and 71 notifications were related to other products.



WTO UPDATES

WTO Ministerial Meeting (MC12)

The WTO concluded its Ministerial meeting (MC12) in Geneva, Switzerland, in June 2022 and announced an outcome that has been welcomed by member countries as a win-win for all.

Outcomes at MC12

Several multi-lateral outcomes were achieved by the members of WTO, at the conclusion of 12th Ministerial Conference (MC12). The series of outcomes also known as "Geneva Package" includes important declaration in areas such as fisheries subsidies, WTO response to emergencies, including a waiver of certain requirements concerning compulsory licensing for COVID-19 vaccines, food safety and agriculture, and WTO reform, which have been mentioned as below:

(a) Response to Food Insecurity

The members agreed to not impose export prohibitions or restrictions in a manner inconsistent with relevant WTO provisions. A decision has been adopted to ensure that food purchases by World Food Programme's (WFP) are exempted from any export prohibitions or restrictions decision by countries. However, it has also been stated that such obligations shall not be in conflict with Members' domestic food security requirements. The decision on finalizing a permanent solution on public stockholding of food grains was, however, deferred and is expected to be concluded by end of MC13.

(b) Response to the Covid-19 Pandemic and Preparedness for Future Pandemics

Members of the World Trade Organisation (WTO) declared to adopt the provision for grant of a temporary patent waiver for manufacturing

COVID-19 vaccines for five years. Such vaccines can also be exported to other countries, under the said provision. However, talks on waiver for therapeutics and diagnostics have been deferred and decision on which is expected to be finalized in the next six months.

(c) Work Programme on Electronic Commerce

WTO members have decided to maintain the current practice of not imposing customs duties on electronic transmissions until MC13.

(d) Agreement on Fisheries Subsidies

The agreement on Fisheries Subsidies aims to achieve a sustainable marine ecosystem by prohibiting three kinds of harmful subsidies related to: i) Illegal, unreported, or unregulated (IUU) fishing, ii) Fishing of already overexploited stocks and iii) Fishing on unregulated high seas. At MC12, the members agreed to a deal on Fisheries Subsidies as an early harvest. The decision on Special and Differential Treatment (SDT) as well as on subsidies related to overcapacity or overfishing is expected to be taken in the next Ministerial Conference. For now, it has been decided to prohibit subsidies related to overfished stocks or leading to illegal, unreported and unregulated (IUU) fishing. However, a two two-year transition period for phasing out such subsidies will be provided to developing and least developed countries for fishing within their Exclusive Economic Zones (EEZs). Further, subsidies related to fishing and related activities outside of the jurisdiction of a coastal Member have been prohibited under the agreement. The members also agreed to consider an extension of fishing limits to 200 nautical miles, which has been one of the demands of India.

FREE TRADE AGREEMENTS/ BILATERAL DISCUSSIONS

INDIA

India-UK



India and UK held the fourth round of negotiations for inking a Free Trade Agreement on 17th June. The two countries are likely to conclude the agreement by Diwali 2022. During the negotiations, the two sides discussed several chapters including anti-corruption, remanufacturing, labour. environment. services. government procurement digitalization. Negotiations for making a Bilateral Investment Treaty (BIT) is likely to be held separately. According to Richard Heald, Executive Chair of the UK-India Business Council (UKIBC), addressing issues related to non-tariff barriers will help in "streamlining of permissions, licenses, and the ability to do business in India will actually receive a boost."

India - Canada

India and Canada concluded the second round of discussions and a third round is slated to be held in between July and August. The fourth round is also expected to be held in September.

At the conclusion of the 5th India-Canada Ministerial Dialogue on Trade and Investment, the two sides issued a joint statement indicating that the deal will include high-level commitments in goods, services, rules of origin, sanitary and phytosanitary measures, technical



barriers to trade, dispute settlement, etc. The deal will help both the countries in diversification of supply chains.

India - EU

India and EU have launched the first round of negotiations for a free trade agreement from 27 June to 1 July 2022. According to a statement by Commerce and Industry Minister, Shri Piyush Goyal, the proposed agreement is likely to give a boost to exports of pharmaceuticals, textiles, agricultural, leather and handloom products. The deal is also expected to catalyse investments from 27 EU countries, provide access to high end technologies and benefit the services sector.



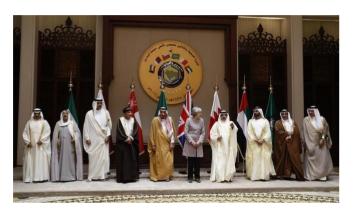
Both sides also plan to launch other agreements such as Investment Protection Agreement (IPA) to create an effective legal framework to facilitate cross-border investments and another one on Geographical Indicators (GIs) Agreement to increase market access for GI tagged products. In parallel to these negotiations, both

sides are also working to define the objectives, scope and format for the EU-India Trade and Technology Council (TTC).

OTHERS

UK-GCC

UK and the Gulf Cooperation Council (GCC) launched UK-GCC Free Trade Agreement on June 22. GCC grouping comprises six Gulf States including Saudi Arabia, United Arab Emirates, Qatar, Kuwait, Bahrain and Oman.



UK Trade Secretary Anne-Marie Trevelyan stated that the deal will "open up new markets for UK businesses large and small, and supporting the more than 10,000 SMEs (small and medium-sized enterprises) already exporting to the region." UK is primarily looking at greater market access for its food, drinks and renewable energy sector exports. Further, the deal will have GCC diversify its energy sources and reduce its dependence on oil.

EU- Netherlands Partnership Agreement

EU has entered into a partnership agreement with Netherlands to provide it funds for its development and growth. Under the partnership, EU aims to invest in Netherlands' green transition. Through its Cohesion Policy funds, EU will support Netherlands in increasing its share of renewable energy sources, reducing energy consumption and greenhouse gas emissions in buildings and small and medium-sized businesses (SMEs). In a statement issued by the European Commission,

a commitment was made to support the country with €310 million worth funds in area of research and innovation in SMEs and the transfer of knowledge to stimulate development and innovative ecosystems and smart specialization.



Further, the funds will be provided for sustainable urban development and integrated investments based on ownership of the local communities in the area of energy transition and circular economy. The Partnership will also provide Netherlands Support in area of employment, skills, sustainable fishery and aquaculture.

Egypt - Saudi Arabia Investment Agreement



Saudi Arabia has inked 14 investment deals worth US\$7.7 billion with Egypt. The investment agreement has been signed to increase the cooperation between the two countries in areas such as the development of infrastructure, e-commerce, petroleum, information technology, pharmaceuticals and cybersecurity. Investment in renewable energy sector, including green hydrogen is also a significant part of the deal signed by the two countries.

POLICY - REGULATORY BRIEF

INDIA

Electricity (Promoting Renewable Energy Through Green Energy Open Access) Rules, 2022



Source: Business Standard

The Central Government notified the Electricity (Promoting Renewable Energy Through Green Energy Open Access) Rules, 2022 for the purchase and consumption of green energy, including the energy from Waste-to-Energy plants. These rules shall be applicable for the generation, purchase and consumption of green energy as defined –

The electrical energy from renewable sources of energy, including hydro and storage (if the storage uses renewable energy) or any other technology as may be notified by the Government of India from time to time and shall also include any mechanism that utilises green energy to replace fossil fuels including the production of green hydrogen or green ammonia as per provision of clause G of subrule (2) of rule 4 (Any other sources, as may be, determined by the Central Government).

Key features:

- ❖ There must be a uniform renewable purchase obligation on all obligated entities in the area of a distribution licensee.
- ❖ Any entity, whether obligated or not, may

- elect to generate, purchase and consume renewable energy as per their requirements by one or more of the following methods:
- I. Own Generation from renewable energy sources;
- II. By procuring Renewable Energy through Open Access from any Developer either directly or through a trading licensee or power markets;
- III. By requisition from distribution licensee:
- IV. By consuming green energy from the captive power plants;
- V. By purchasing renewable energy certificates;
- VI. Purchase of green hydrogen or green ammonia.
- All applications for open access to green energy will be allowed by the nodal agency within fifteen days.
- ❖ The Central Government shall notify a Central Nodal Agency to set up and operate a single-window green energy open access system for renewable energy.
- The Central Nodal Agency shall prepare a common application format for the Green Energy Open Access in consultation with the Forum of Regulators and applications for the Green Energy Open Access within sixty days of commencement of these rules be made in this format.
- Banking shall be permitted at least every month on payment of charges to compensate additional costs to the distribution licensee by the Banking, and the Appropriate Commission shall fix the applicable charges.
- The charges to be levied on Green Energy Open Access consumers shall be as follows:
 - a) Transmission charges;
 - b) Wheeling charges;
 - c) Cross subsidy Surcharge;
 - d) Standby charges wherever

- applicable; and
- e) No other charges except the charges above shall be levied.
- The distribution licensee shall give a green certificate on a yearly basis to the consumers for the green energy supplied by the licensee to the consumer on his request beyond the renewable purchase obligation of the consumers.

Gujarat Telecom Infrastructure Policy 2022

Digital India is an initiative of the Government of India which emphasizes the adoption of ICT for governance, employment generation, citizen empowerment and economic development. To be in line with this initiative, state governments must improve the telecommunications infrastructure. This is also important for governments because there is an increase in digital penetration – demand and consumption.



The Gujarat Telecom Policy 2022 is expected to help roll out the 5G network and take broadband internet connectivity across the state, where 512 villages still have no telecom connectivity. The Science and Technology Department requires a single-window clearance. This policy is in tune with the central government's policy of the year 2016, the state government said in its release.

The policy, the government said. is integrated, connecting all administrative departments of the state, for the installation of optical fibre and mobile towers.

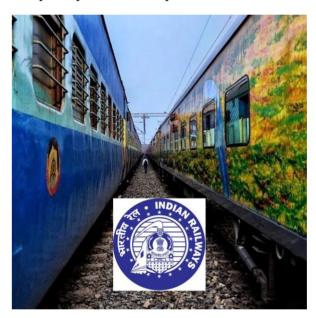
The entire process of setting up of telegraph

infrastructure will be made online and permissions will have to be granted within a time limit of 60 days.

According to the state government of Gujarat's new advanced execution of the Right of Way (RoW) strategy, growth will improve due to the ease of e-transaction and the extent of internet bandwidth. Through this unified policy for all administrative departments, the benefits can take a single action on this online platform.

Innovation Policy for Indian Railways

Ministry of Railways has launched Indian Railway Innovation Policy – "StartUps for Railways" to leverage innovative technologies developed by Indian companies.



This policy document lays down a broad framework for the Ministry of Railways' interaction with innovators to develop technology, goods, and need-based solutions for Indian Railways. Through the participation of a big and untapped start-up ecosystem, the policy will bring scale and efficiency in operation, maintenance, and infrastructure building.

Start-ups would have an excellent opportunity to connect with railways through this platform. Out of approximately 100 problem statements received from various railway divisions, 11 problem statements such as rail fracture, headway decrease, and so on have been taken

up for phase 1 of this programme. These will be given to start-ups in order to develop creative solutions.

The railway minister encouraged companies to take advantage of this opportunity and assured them of Indian Railways' support in the form of a 50% capital grant and a guaranteed market, scale, and ecosystem.

Features

- ❖ Grant up to Rs. 1.5 Crores (US\$ 0.18 bn) to innovator on equal sharing basis with provision of milestone-wise payment.
- Complete process from floating problem statement to prototype development is online with a defined timeline to make it transparent and objective.
- Trials of prototypes will be done on Railways. Enhanced funding will be provided to scale up deployment on the successful performance of prototypes.
- Selection of Innovator/s will be done by a transparent and fair system which will be dealt with through an online portal inaugurated today by the Minister of Railways.
- Developed Intellectual property rights (IPR) will remain with the innovator only.
- ❖ Assured developmental order to innovator.
- De-centralization of the complete product development process at the divisional level to avoid delays

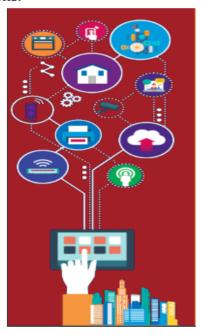
Benefits:

- This policy will bring scale and efficiency in operation, maintenance and infrastructure creation through the participation of a vast and untapped startup ecosystem.
- It also aims to leverage innovative technologies developed by Indian Startups/

- MSMEs/ Innovators/ Entrepreneurs to improve operational efficiency and Safety of Indian Railways.
- ❖ It will Promote an "Innovation Culture" in the country for co-creation and coinnovation in the Railway sector.

National e-Governance Service Delivery Assessment 2021 Report

The Department of Administrative Reforms & Public Grievances (DARPG) published the second edition of the report on the National e-Governance Service Delivery Assessment (NeSDA) for State and Union Territories. The NeSDA 2021 report has been prepared to examine the effectiveness of State, UTs and Central ministries in delivering online services to citizens.



The NeSDA 2021 report covers services across seven sectors – Finance, Labour & Employment, Education, Local Governance & Utility Services, Social Welfare, Environment and Tourism sectors.

The portals assessed were divided into two categories – first, the designated portal of the respective government provides a single-window of access to information and service links. These portals were assessed on four

parameters, viz., Accessibility, Content Availability, Ease of Use, and Information Security & Privacy. The second category focuses on the digital delivery of services and provides service-related information. The Services Portals were assessed on an additional three parameters: End-service Delivery, Integrated Service Delivery, and Status & Request Tracking.

Ranking in State/UT Portals: Among the North-East and Hill States, Meghalaya and Nagaland are the leading State Portals with an overall compliance of more than 90% across all assessment parameters. Among Union Territories, Jammu & Kashmir ranked the highest with an overall compliance of nearly 90%. Among the Remaining States, Kerala, Odisha, Tamil Nadu, Punjab, Karnataka and Uttar Pradesh had a compliance of more than 85%. Amongst all the States and UTs, Kerala had the highest overall compliance score.

Ranking in State/UT Service Portals: Among the Services Portals for North-East and Hill States, the highest-ranking states of Meghalaya and Tripura showed improvement across all six sectors. In the Union Territories category, Jammu & Kashmir was assessed for the first time in NeSDA 2021 and scored the highest amongst all UTs for six sectors. Among the Remaining States, Andhra Pradesh, Kerala, Punjab, Goa, and Odisha also improved the compliance of their Services Portals by 100%. Punjab, Tamil Nadu, and Rajasthan are the leading states with compliance of more than 75% across all parameters for their Services Portals.

Ranking in Central Ministries: Among the focussed Central Ministries, Home Affairs, Rural Development, Education, and Environment, Forest & Climate Change are the leading Ministry Portals with an overall compliance of more than 80% across all assessment parameters. Ministry Portal of Home Affairs had the highest overall compliance score. The Central Public Procurement Portal, Digital

Police Portal, and Bhavishya Portal are the leading Ministry Services Portals with an overall compliance of more than 85% across all assessment parameters.

The following suggestions had been made to provide guidance for the way forward for e-Governance in India –

- Creating an inclusive digital ecosystem
- Mandatory Sector-specific Service Focus to attain SDG Goals
- ❖ Integrated Service Delivery through the adoption of the India Enterprise Architecture (IndEA) framework for a ONE Government experience
- Adoption of Standards for Uniformity in governance
- Improving accessibility for higher uptake
- ❖ Focus on security and privacy for public data
- Embracing New Age Technologies for improved service delivery
- e-Literacy for inclusiveness

Andhra Pradesh relaxes norms to set up industry

To boost industrialization, the Andhra Pradesh Industrial Infrastructure Corporation (APIIC) has decided to grant allottees additional time to set up industries in designated industrial parks. APIIC also agreed to lessen the penalty for delaying the establishment of industries after acquiring Government land. APIIC also inked a Memorandum of Understanding (MOU) with banks and financial institutions to lend to MSMEs.

According to APIIC chairman Mettu Govinda Reddy, the relaxation to set the industries is given while keeping in view representations received from budding entrepreneurs. He also stated that many terms of the Extension of Time (EOT) policy would be changed to provide licensees more time to startup shop.

The APIIC board has approved a reduction in the penalty for EOT. Industrialists who were

awarded plots in industrial parks before April 2022 will be given ten years instead of five years under the current regulation. However, the exemption will only be granted based on the actions taken by the industrialist to establish the unit within the first five years.

APIIC will closely monitor the progress of the industry's establishment beginning with the grant of the plot. As to compute the penalty for the delay, APIIC has decided to use the land value at the time the factory was first operational. Prior to this, the penalty was determined at the time of land allocation. This was done based on the land's valuation, which will enable APIIC to gain additional revenue.

Another decision taken by APIIC to upgrade the industry park is that APIIC zonal managers have been directed to look into the greenery in the industrial parks and take measures to enhance the green belt.

WORLD

California: Draft regulations on privacy law

The California Privacy Protection Agency (the Agency) (CPPA) has released a preliminary draft of proposed regulations to implement the California Consumer Privacy Act (CCPA), as amended by the California Privacy Rights Act (CPRA).



The CPPA released the <u>draft regulations</u> for the California Privacy Rights Act (CPRA) on 27th May 2022. The CPRA will go into effect from 1st January 2023. The draft's finalization date is 1st June 2022, which is unlikely, and this is yet to be

seen whether this delay will impact the enforcement date.

The California Attorney General issued final regulations for the California Consumer Privacy Act, or CCPA, in August 2020. The CCPA is the comprehensive state privacy law that the CPRA will supersede in January 2023. The May 2022 draft CPRA regulations redlined the August 2020 CCPA regulations and primarily focus on the CPRA's modifications to preexisting CCPA ideas. The draft regulations provide businesses with a long-awaited roadmap to law compliance, albeit one that still needs clarity and finalisation.

This preliminary draft addressed key regulations such as dark patterns, expanded rules for service providers, third-party contracts, third-party notifications, requests to correct, privacy policy rules, new definitions, rules reg- consumers under 16 years of age and enforcement considerations. However, this draft is yet to be discussed and modified.

Key changes to the regulations

Dark Patterns: The CPRA sought to address issues relating to dark patterns, which the CPRA defines as "[a] user interface designed or manipulated with the substantial effect of subverting or impairing user autonomy, decision-making, or choice, as further defined by regulation." The CPRA introduced a new concept that was not contemplated directly by the CCPA: the concept that dark patterns cannot be used to obtain valid consent (e.g., consent to track and share personal information.

As per CPRA, user interface architecture must (1) be "easy to understand," (2) provide "symmetry in choice," (3) "avoid language or interactive elements that are confusing to the consumer," (4) "avoid manipulative language or choice architecture," and (5) be "easy to execute.

An example of dark patterns "[a] website banner that serves as a method for opting out of

the sale of personal information and only provides the two choices, 'Accept All' and 'More Information,' or 'Accept All' and 'Preferences,'" is explicitly prohibited in this draft.

Expanded rules for service providers: New and modified provisions in the proposed regulations that may affect the service providers & Vendors, i.e., companies who collect and handle data in the context of delivering a service (including software-as-a-service or SaaS enterprises) to another entity. According to the regulations, obligations are imposed on the service provider and the person or entity to whom the services are delivered.

The changes include: (i) expanding the applicability of service provider provisions while excluding cross-contextual advertising services; (ii) adding product or service improvements to the list of reasonable uses of personal information; and (iii) instituting explicit and specific requirements for contracts with service providers and contractors.

Contractual requirements for the third party: In the draft regulation, the third party is not defined. It refers to any person or entity that receives personal information from a business and is not considered a service provider or contractor. Third-party requirements – (i) A business that sells or shares the data with a third party must sign a contract; (ii) a third party can only use or retain the data for the purposes it was sold or shared; (iii) third party must comply to CPRA regulations and provide data privacy protection.

Businesses should inform consumers about third-party data collection. The CPPA provided the following example: if a coffee shop allows a business providing Wi-Fi to collect personal information, then the coffee shop needs to inform customers of that third-party data collection through a sign or other signals.

Privacy Policy: Section 7011 lays down the Privacy policy objective, which is to offer consumers a detailed overview of a business's online and offline practices involving the collection, use, sale, sharing, and retention of personal information. It should also inform consumers about their privacy rights and provide them with any information they need to exercise those rights.

The consumer rights under new regulations:

- a. the right to correct the inaccurate personal information;
- b. the right to opt-out of the sale or sharing of personal information; and
- c. the right to limit the disclosure of sensitive personal information

Consumers under 16 years of age: Businesses that sell or share the personal information of a consumer under the age of 16 shall establish, document, and comply with a reasonable method for determining that the person consenting to the sale or share of the personal information about the child is the parent or guardian of that child. Businesses must consent to the sale or sharing of personal information under the Children's Online Privacy Protection Act (COPPA).

China's draft rules on Drug Administration

China's National Medical Products Administration (NMPA) has released a new draft amendment to its Drug Administration Law (DAL), which introduces some significant changes to the regulatory framework and aims to codify initiatives implemented in the current DAL, such as patent linkage and regulatory data protection. The Draft Amendment also reflected the NMPA's new attempt to address issues of greater public concern, such as penalty guidelines for violations of the DAL.



Highlights of the Draft Implementing Rules

Extra-territorial reach: The Draft Revision stipulates that drug research and development activities for the purpose of marketing drugs in China, whether undertaken inside or outside China, must comply with the requirements of Chinese laws, regulations, rules, standards, and norms. The draft includes GLP certification requirements for the first time and clarifies that certifications are valid for five years.

Drug Market Authorization: The Draft Revision makes it clear that a drug marketing authorization applicant (an "NDA applicant") and a drug clinical trial sponsor (an "IND sponsor") may be two distinct legal entities for the first time in administrative regulations. The applicant for the NDA takes on all duties and liabilities associated with the request for marketing authorisation. The Draft Revision also clearly provides that drug innovation should be supported in terms of scientific and technological project establishment, financing, credit, bidding procurement, price payment, and medical insurance.

Market exclusivity: Three categories of market exclusivity are introduced by the Draft Amendment: paediatric drug exclusivity, orphan drug exclusivity, and generic drug exclusivity. Generic manufacturers won't be able to obtain a marketing licence during the exclusivity period.

An innovative (i.e., first-ever in the world) paediatric drug or a paediatric drug with a new dosage form, specification, indication, dosing regimen, or administration may be granted a market exclusivity period of up to 12 months.

Innovative orphan medications may be eligible for a seven-year market exclusivity period. The market exclusivity period for first-to-market generics may be shorter than the remaining patent term or 12 months.

Data Regulations: Pharmaceutical businesses focusing on R&D have been particularly concerned about patent linkage and regulatory data protection. The PRC Patent Law recognised patent linkage, and the Draft Amendment merely reiterated the mechanism. As the draft measures provide data exclusivity periods for drugs approved for marketing in China: a sixyear data protection period for innovative drugs, orphan drugs, and pediatric drugs; and 12 years for innovative therapeutic biological products.

Penalty: The Draft Amendment defines a set of sentencing guidelines for administrative penalties. Such as - illegal income includes all income obtained from illegal manufacturing/sale of drugs/ provision of services, and only the taxes and social insurance funds that the parties have paid can be deducted.

European Union: New rules to reduce the risk and use of pesticides



The European Commission has adopted proposals for a <u>new Regulation</u> on the Sustainable Use of Plant Protection Products, including EU-wide targets to reduce by 50% the use and risk of chemical pesticides by 2030, in line with the EU's Farm to Fork and Biodiversity strategies. These new recommendations were voted on June 22, 2022, and are part of a package of measures to lower the environmental footprint of the EU's food system and assist in minimising the economic losses caused by climate change and biodiversity loss.

This proposal also aims to meet the objectives of the EU pollinators initiative, the EU chemicals strategy for sustainability and the EU strategic framework on health and safety at work 2021-2027. The main measures:

Legally binding EU aims to reduce the use and risk of chemical pesticides, as well as the usage of more hazardous pesticides, by half by 2030. To ensure that the EU-wide targets are met, member states will set their own national reduction targets within prescribed boundaries.

Environmentally friendly pest control: New regulations will require all farmers and other professional pesticide users to employ Integrated Pest Management (IPM). This is an environmentally friendly pest control approach that prioritises pest avoidance and alternative pest control measures, with chemical pesticides used only as a last resort.

All pesticides are forbidden in **sensitive areas** (and within 3 metres of these places), such as public parks or gardens, playgrounds, recreation or sports fields, public walkways, and ecologically sensitive areas.

Exceptional EU assistance: Farmers will be helped in this transition by the EU's Common Agricultural Policy (CAP): for the next five years, Member States can utilise the CAP to cover the expenses of the new requirements for farmers.

The new rules are in line with the European Green Deal to show Europe's commitment into action, protecting health, and building a sustainable food system. As the existing rules on the Sustainable Use of Pesticides Directive (SUD)have proven to be too weak in their implementation, application and enforcement.

The working of SUD is evaluated by the Court of Auditors and the European Parliament and it showed that there was insufficient progress in reducing the risks and impacts of pesticide use on human health and the environment. They also noted insufficient progress in promoting the use of Integrated Pest Management and alternative approaches or techniques, such as non-chemical pesticide alternatives.

The use of chemical pesticides was impacting the health of citizens; halting in the decline of bees and other pollinators and continues to contribute to biodiversity decline in agricultural areas and contamination of the air & water.

Africa's rules of origin to be finalized

Rules of origin are needed to attribute one country of origin to each product. They are the criteria used to define where a product was made and are important for implementing other trade policy measures, including trade preferences (preferential rules of origin), quotas, anti-dumping measures and countervailing duties (non-preferential rules of origin).

During a consultative meeting on African Continental Free Trade Area (AfCFTA) and Tripartite Free Trade Area (TFTA), the private sector asked to speed up the finalization of rules of origin.

As per traders, under the EABC, mention that the existing rules, which have not been reviewed since 2015, have been denied a number of products for market access to the EAC markets. The main purpose to review this is to bring a trade-friendly environment and more investment to the region.

Forty-five countries have already agreed on 87 per cent of the Rules of Origin for products. However, according to Mr Prudence Sebahizi, the chief technical advisor on the AfCFTA at the African Union (AU) Commission, the process is yet to be finalised. He further added that products such as textiles and clothing alone compose 10.5 per cent, Motor vehicle parts and accessories compose 1.4 per cent and tobacco

and tobacco substitutes and fish and others compose one per cent of the outstanding Rules of Origin which are yet to be finalised under the AfCFTA trade arrangement.

Mr. John Bosco Kalisa, EABC executive director said that in order to promote "Made in East Africa" and "Made in Africa" products, AfCFTA should build a strong partnership with the private sector.

Other requests made by the business – to have a trade dispute resolution mechanism, capacity building at AfCFTA, publication of AfCFTA etariff books and host the next edition of the intra-Africa Trade Fair in East Africa.

OPINION COLUMN

Smart Manufacturing Akriti Kumari

Decoding Smart Manufacturing in the context of India's manufacturing Ecosystem

The growth of Indian Manufacturing Sector is the current need of the hour for recovering the economic loss faced by the country due to pandemic. Even if the pandemic was a curse on humanity, it acted as a boon in disguise for the Manufacturing Sector worldwide, making the adoption of technology a mandate for every small or big firm to survive.

With US\$3.1 trillion in GDP, India is the world's sixth-largest economy and manufacturing sector accounts for a good 30 percent of the country's GDP. This underscores the importance of manufacturing and given the huge push that the manufacturing sector in India has started receiving from policymakers, it is the best time for entrepreneurs and new business ventures to foray into the sector.

To achieve the national growth target of US\$ 1.1 trillion by FY26, Indian Manufacturing Sector (especially the MSMEs) will have to become "Smart" for experiencing the multi-fold increase in the productivity, and the key enabler for this is adoption of Industry 4.0 on factory floors.

But what exactly is an "ecosystem" in smart manufacturing terms? A smart manufacturing ecosystem is a coalition of manufacturing professionals and organizations working together to utilize smart technologies to address industry challenges. Smart ecosystems enable a cumulative "network" effect for Human and Machine and create value greater than the sum of parts, driving higher performance and creating exponential results. Underlying all of this is the concept of collaborating and coevolving. For smart manufacturing, Industry 4.0 necessitates the notion of evolution as

advanced technologies continue to propagate.

Industry 4.0 support's the smooth functioning of Smart Manufacturing, through its technologies like, Robotics, Artificial Intelligence, Additive Manufacturing, IIoT, Big Data, AR/VR and Block Chain.

To stay relevant in this unprecedented times Indian manufacturers have started to reach out to vendors and service providers outside their organizations to support their smart manufacturing journey. But it is very important for a company to have perfect connection between and among these in-house & out-house vendors, which we call as Smart Ecosystem.

The next very important part of this ecosystem is building Human Capabilities for an organization. The transformation happening in the manufacturing sector is not just about our ability to adopt new technologies but also building new sets of skills to help us use them to our advantage. Adoption of these new technologies is now helping us run the machines with minimal or zero downtime, improve the quality and productivity of both machines and people, customize products and develop new ones, and access new customers and markets.

With such sweeping transformations taking place in the manufacturing sector, the question is not whether we wish to be a part of the Fourth Industrial Revolution but how quickly can we change and more importantly how do we build the human capabilities to drive and sustain this. India's fresh and existing workforce needs to be skilled and re-skilled respectively in Industry 4.0 technologies which will require support from all the stakeholder i.e. government, industry and academia to enable an Industry 4.0-ready workforce.

(The writer is an Senior Research Analyst at VeKommunicate)

Geopolitics Behind the Clutter Anjali Mahto

MSME Trade and Decarbonization

Micro, small and medium enterprises (MSMEs) have been recognized as growth engine of Indian economy. The contribution of MSMEs in employment generation and growth of the Indian Industrial ecosystem has been widely acknowledged.



According to reports, MSMEs accounts for nearly 30 per cent of GDP and are the second largest employers in the country. In terms of exports, MSME account for nearly 45% of overall exports. While MSMEs have huge potential to contribute in further widening India's exports basket, there are certain challenges that unlocks such opportunities. Barriers such as limited access to finance, lack of transparency as well as stringent regulatory challenges and border procedures have been restricting their direct participation in global value chains (GVCs).

Climate change related 'policy making' is another barrier that MSMEs face which is likely to impact their integration in GVCs. For instance, EU is likely to introduce carbon price on imports of a selected products by 2026. Such a measure is likely to increase costs associated with exports and can render them uncompetitive in pricing. Similar barriers are likely to become more intense as the pressure to decarbonize economy and businesses grows. Therefore, it is very important for India to ensure active policy

making related to climate change to help MSMEs businesses take action for decarbonisation of their supply chains.

Following are some of the suggestions in this direction:

- ❖ According to a WTO survey, MSMEs are aware of climate change related business concerns. However, there is lack of proper knowledge among them regarding strategies that can be adopted to mitigate these concerns. Therefore, a common repository of data can be created to reduce any information asymmetry and provide them knowledge of technologies and business practices that can be adopted to reduce intensity of their carbon emissions.
- ❖ It has been apprehended those Indian industries, including MSMEs are likely to face their first climate inaction related major economic loss due to misalignment of their climate assets and projects with global norms. The wide variety of standards, measurement requirements and carbon content calculations present across different countries makes it difficult for MSMEs to demonstrate their compliance with those regulations. This is likely to impact their access to certifications and labels that are required to enter foreign markets. Therefore. governments should take measures to harmonize domestic standards with international standards which will MSMEs to develop their encourage competitiveness in international markets.
- ❖ Decarbonisation involves huge costs and investment in green technology and transition. However, getting access to finance such costs and investments has been challenging for MSMEs due to lack of proper financial arrangements. Therefore, there should be fiscal incentives made available to MSMEs to offset such costs and support their financing needs.

❖ Further, governments should voice the issues related to compliance with international standards and regulations in a multilateral setting to help MSMEs get certain flexibilities that are required for their growth.

While climate change poses several challenges to MSMEs, they also offer opportunities for them to innovate, become sustainable, gain business efficiency and trade gains. MSMEs, however, face capital constraints, regulatory issues as well as lack of proper access to green financing which has been limiting their plans for green transition. Therefore, it is required that governments work closely with MSMEs to identify the overall challenges they face and make key policy and fiscal initiatives to help them gain advantage in international trade.

(The writer is an Account Executive at VeKommunicate)

Environment Equity Saloni Goyal

MSME and climate goals

In COP26, countries were urged to come forward and pledge to achieve net-zero carbon emissions by 2050. India also made two major commitments - First, to fulfil half of the country's energy requirements through renewable energy by 2030. And second, achieving the target of net-zero carbon emissions by 2070.

The Micro, Small and Medium Enterprises (MSME) sector is the backbone of the Indian economy. MSME contributes to job creation and sustainable development. This sector contributes nearly 30 per cent to the GDP and inclusive growth by employing 11 crore people or approx. Forty-five per cent of the workers. On the other side, small and micro businesses are one who faces major environmental challenges over the past few years.



To fulfil India's commitment towards combating climate change, we need to address the policy and regulations. Indian MSME businesses can help combat climate change as they face a number of the direct and indirect impacts of environmental crises. The direct impact includes supply chain disruptions and loss of inventories. The indirect impact includes power supply and logistics hampered.

MSMEs can help shift to a low-carbon economy and focus on COP26 commitments that result in sustainable development. MSME plays an

important role in the climate technology sector and assists in delivering goods and services to the lower socioeconomic groups, which may help increase the resilience of sensitive areas to climate change.

MSME's new solution to achieve climate goals

Financial viability: According to the Climate and Development Knowledge Network (CKDN) report, there is a financing gap of US \$ 4-5 billion for MSMEs that provide climate technologies. Further, as per the report, the sector is facing this challenge because of a lack of awareness, competitive environment and lack of financial solutions.

In India, only 16% of MSMEs cater their finance from the formal banking sector because there are barriers to avail benefits. As a way forward, India needs to work on a strategy to bring finance into the sector. And parallelly, to bridge the gap sector should be connected with the formal banking system and make it MSME-friendly.

Energy Efficient: Small businesses have low carbon footprints, but the combined effect can be much more significant than big businesses. This is the biggest challenge the sector faces, i.e. inefficient data on energy consumption and emissions. A huge number of small businesses do not keep monitoring their energy consumption.

In India, the sector is dependent on fossil fuels and coal for energy production. To address this, India has an ambitious plan to increase renewable power production and energy efficiency in the infrastructure – grid and construction sectors. Recently, the Small Industries Development Bank of India (SIDBI) launched a Green Finance Scheme to support green projects in the MSME sector, such as renewable energy, electric vehicle charging stations, battery swaps, and charging stations for electric vehicles.

MSMEs have huge potential to adopt actions in their business practice to contribute to the goal. But the government has to lay a foundation and provide direction towards that. In other words, government has to create such an ecosystem in which MSME can grow as well as help in achieving the broader vision of the country in climate change.

(The writer is an Account Executive at VeKommunicate)

Agri - Economy Shreesh Kaushik

Impact of Climate Change on Indian Agriculture

Climate change is posing a major threat to Indian agriculture in general and food security in particular. India is also identified as one of the country's most vulnerable to climate change. Recent studies have shown significant increases in temperature, normal temperature waves, droughts, events of extreme rainfall, and strong cyclonic activity. India's monsoon has also weakened which serve as a primary source of water for India's agriculture sector.

Global warming brings images of melting glaciers, rising sea levels and deforestation. Although all of these conditions are very harmful, people do not usually think that their food supplies will be significantly affected by climate change. With climate change and the increase in greenhouse gas emissions like methane in the atmosphere, agricultural production has had a major impact. If global temperatures continue to rise sharply to more than 1.5 degrees C, then agricultural activity will be severely affected and threaten to push millions into food shortages.

Climate change can lead to prolonged and severe periods of drought and low rainfall. Extreme weather conditions such as heavy rainfall, heat waves could adversely affect crops harvest. and Increased humidity contribute temperature also to lower productivity of agricultural workers as wet-bulb temperatures, where moisture and temperature are measured together, will continue to rise to dangerous levels and lead to loss of production days.

Fruits and vegetables are equally at risk due to various climates. Potatoes and other starchy roots and root crops, although resistant to temperature changes, are very sensitive to water shortages. Additionally, an increase in temperature and water shortages can have a profound effect on the early crops' development. The fishing industry will also have a major impact as warm water will generally reduce the amount of dissolved oxygen in the water, reducing the high number of supported fish. Pets will be under pressure due to the high temperatures themselves.



What can be done?

Although the world needs to come together to ensure that climate change does not see global warming rising by 1.5 degrees C or more, at the same time adaptation measures need to be measured from this moment on. Adaptation and mitigation can reduce the impact of global warming on the 21st century. India has begun paying close attention to the ways in which climate change affects agriculture in various contexts. The climate change policy in Indian agriculture is clearly focused on adaptation and developing adaptability to farmers is a major concern. Thus, with about 86 percent of Indian agriculture being small-scale farmers and the majority of them, especially in arid areas, subsistence farming where adaptability is a problem of life.

The National Mission on Sustainable Agriculture (NMSA), established in 2010 under the National Action Plan on Climate Change (NAPCC), through a series of adaptation measures, aims to promote improved agricultural practices

focused on integrated agriculture, water use. Efficiency, soil health management and integrated resource conservation, especially in rainy areas.

Agriculture as the state subject under the Constitution of India, the planning and implementation of the policy falls largely under various states and local institutions, where the Central Government provides a comprehensive framework of policies and guidelines. The development of the State Action Plan on Climate Change Program (SAPCC) needs to be considered to reduce impact of climate change on agriculture sector.

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