

“Case Study: Scenario of industries after COVID-19”

Submitted by

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1. INTRODUCTION

Pandemics are large-scale outbreaks of infectious disease that can greatly increase morbidity and mortality over a wide geographic area and cause significant economic, social, and political disruption. The 2019–20 corona-virus pandemic is an ongoing pandemic of coronavirus disease 2019. This is a hot-topic nowadays as people worry about the ongoing changes it has been causing to their lives. This pandemic has forced the citizens of this world to go into a global LOCKDOWN, not knowing what will be the after-effects of this currently existing situation. This report is to study the impact of this corona-virus pandemic on the global economy, it's present situation and what can be the effect after all of this is over.

Economists generally agree that economic development and growth are influenced by four factors: human resources, physical capital, natural resources and technology.

- **HUMAN RESOURCES:** - The skills, education and training of the labor force have a direct effect on the growth of an economy. A skilled, well-trained workforce is more productive and will produce a high-quality output that adds efficiency to an economy.
- **PHYSICAL CAPITAL:** - Improvements and increased investment in physical capital – such as roadways, machinery and factories – will reduce the cost and increase the efficiency of economic output. Factories and equipment that are modern and well-maintained are more productive than physical labor. Higher productivity leads to increased output.

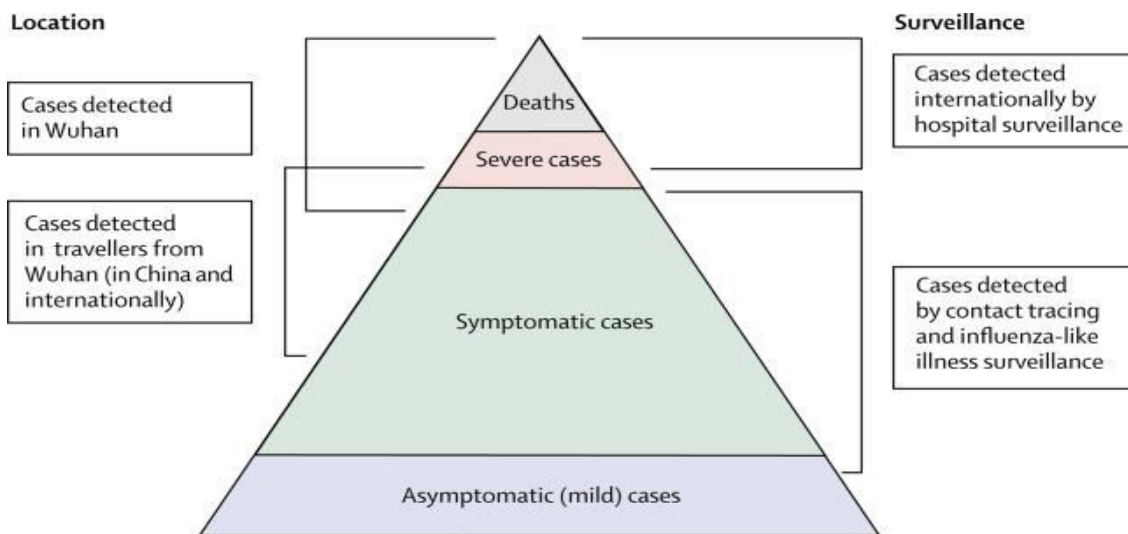
- **NATURAL RESOURCES:** - The quantity and availability of natural resources affect the rate of economic growth. The discovery of more natural resources, such as oil or mineral deposits, will give a boost to the economy by increasing a country's production capacity.
- **TECHNOLOGY:** - Improvements in technology have a high impact on economic growth. As the scientific community makes more discoveries, managers find ways to apply these innovations as more sophisticated production techniques.

Now we can understand that all these areas have been affected by the ongoing pandemic. The following report suggests different ways a particular industry can grow after this pandemic is over. Different areas any industry can focus which will help in its development and prosperity.

1.1 WHAT IS CORONAVIRUS?

Before going into the depth of the impact on industries and other different sectors of an economy, let's first understand WHAT IS CORONAVIRUS? HOW HAS IT CAUSED A HALT ON PEOPLE'S LIVES? WHAT CAN WE DO TO OVERCOME IT?

- **Corona-viruses** are a group of related viruses that cause diseases in mammals and birds. In humans, corona-viruses cause respiratory tract infections that can range from mild to lethal. Mild illnesses include some cases of the common cold, while more lethal varieties can cause SARS (Severe Acute Respiratory Syndrome), MERS (Middle East Respiratory Syndrome), and COVID-19 (Corona-virus Disease 2019).
- In December 2019, a pneumonia outbreak was reported in Wuhan, China, On 31 December 2019, the outbreak was traced to a novel strain of corona-virus, which was given the interim name 2019-nCoV by the World Health Organization (WHO), later renamed SARS-CoV-2 by the International Committee on Taxonomy of Viruses. Some researchers have suggested the Huanan Seafood Wholesale Market may not be the original source of viral transmission to humans.
- As of 16 April 2020, there have been at least 137,666 confirmed deaths and more than 2,072,228 confirmed cases in the coronavirus pneumonia pandemic. The Wuhan strain has been identified as a new strain of Betacoronavirus from group 2B with approximately 70% genetic similarity to the SARS-CoV. The virus has a 96% similarity to a bat corona-virus, so it is widely suspected to originate from bats as well. The pandemic has resulted in travel restrictions and nationwide lock-downs in several countries.
- The severity of the virus can be understood by a diagram:-



(Figure 1)

1.2 Modes of transmission of the COVID-19 virus

- Respiratory infections can be transmitted through droplets of different sizes: when the droplet particles are $>5\text{-}10\text{ }\mu\text{m}$ in diameter they are referred to as respiratory droplets, and when they are $<5\text{ }\mu\text{m}$ in diameter, they are referred to as droplet nuclei. According to current evidence, COVID-19 virus is primarily transmitted between people through respiratory droplets and contact routes. In an analysis of 75,465 COVID-19 cases in China, airborne transmission was not reported.
- Droplet transmission occurs when a person is in close contact (within 1 m) with someone who has respiratory symptoms (e.g., coughing or sneezing) and is therefore at risk of having his/her mucosae (mouth and nose) or conjunctiva (eyes) exposed to potentially infective respiratory droplets. Transmission may also occur through fomites in the immediate environment around the infected person. Therefore, transmission of the COVID-19 virus can occur by direct contact with infected people and indirect contact with surfaces in the immediate environment or with objects used on the infected person (e.g., stethoscope or thermometer).
- Airborne transmission is different from droplet transmission as it refers to the presence of microbes within droplet nuclei, which are generally considered to be particles $<5\text{ }\mu\text{m}$ in diameter, can remain in the air for long periods of time and be transmitted to others over distances greater than 1 m.

Now that we know how can we get infected by the virus and what is the extremity of the virus, let's see what precautions we can take to avoid getting infected by it.

- The best way to prevent illness is to avoid being exposed to this virus.
- The virus is thought to spread mainly from person-to-person.
 - Between people who are in close contact with one another (within about 6 feet).
 - Through respiratory droplets produced when an infected person coughs, sneezes or talks.

- These droplets can land in the mouths or noses of people who are nearby or possibly be inhaled into the lungs.
- Some recent studies have suggested that COVID-19 may be spread by people who are not showing symptoms.

1.2.1 Steps to keep yourself safe

Clean your hands often

- Wash your hands often with soap and water for at least 20 seconds especially after you have been in a public place, or after blowing your nose, coughing, or sneezing.
- If soap and water are not readily available, use a hand sanitizer that contains at least 60% alcohol. Cover all surfaces of your hands and rub them together until they feel dry.
- Avoid touching your eyes, nose, and mouth with unwashed hands.



Figure 2

Avoid close contact

- Avoid close contact with people who are sick
- Stay home as much as possible.
- Put distance between yourself and other people.
- Remember that some people without symptoms may be able to spread virus.
- Keeping distance from others is especially important for people who are at higher risk of getting very sick.



Figure 3

Cover your mouth and nose with a cloth face cover when around others

- You could spread COVID-19 to others even if you do not feel sick.
- Everyone should wear a cloth face cover when they have to go out in public, for example to the grocery store or to pick up other necessities.
- Cloth face coverings should not be placed on young children under age 2, anyone who has trouble breathing, or is unconscious, incapacitated or otherwise unable to remove the mask without assistance.
- The cloth face cover is meant to protect other people in case you are infected.
- Do NOT use a facemask meant for a healthcare worker.
- Continue to keep about 6 feet between yourself and others. The cloth face cover is not a substitute for social distancing.



Figure 4

Cover coughs and sneezes

- If you are in a private setting and do not have on your cloth face covering, remember to always cover your mouth and nose with a tissue when you cough or sneeze or use the inside of your elbow.
- Throw used tissues in the trash.
- Immediately wash your hands with soap and water for at least 20 seconds. If soap and water are not readily available, clean your hands with a hand sanitizer that contains at least 60% alcohol.



Figure 5

Clean and disinfect

- Clean AND disinfect frequently touched surfaces daily. This includes tables, doorknobs, light switches, countertops, handles, desks, phones, keyboards, toilets, faucets, and sinks.
- If surfaces are dirty, clean them. Use detergent or soap and water prior to disinfection.

- Then, use a household disinfectant. Most common EPA-registered household disinfectant will work.

1.2.2 Types of masks

Covering your nose in public with masks is of utter importance. This can effectively decrease the spread of the virus in great proportion.

When you hear about face masks for COVID-19 prevention, it's generally three types:

- Homemade cloth face mask
 - Surgical mask
 - N95 respirator
-
- To prevent the spread of the virus from people without symptoms, the Centers for Disease Control and Prevention (CDC) is now recommending that everyone wears cloth face masks, such as homemade face masks, while in public places where it's difficult to maintain a 6-foot distance from others. This recommendation is in addition to continued social distancing and proper hygiene practices.
 - Surgical masks are disposable, loose-fitting face masks that cover your nose, mouth, and chin. They're typically used to:
 - protect the wearer from sprays, splashes, and large-particle droplets
 - prevent the spread of potentially infectious respiratory secretions from the wearer to others.
 - An N95 respirator is a more tight-fitting face mask. In addition to splashes, sprays, and large droplets, this respirator can also filter out 95% of very small particles. This includes viruses and bacteria. The respirator itself is generally circular or oval in shape and is designed to form a tight seal to your face. Elastic bands help hold it firmly to your face. Some types may have an attachment called an exhalation valve, which can help with breathing and the buildup of heat and humidity.

2. GOVERNMENT SCHEMES FOR THE BPL AND LOW WAGERS OF INDIA

- India announced a \$22.6bn economic stimulus package including cash transfers and food security measures, offering relief to the poor across the country hit by the nationwide lockdown to withstand the novel coronavirus pandemic. India rolled out a ₹1.7 trillion relief package, amounting to about 1% of its gross domestic product, marking an aggressive attempt to limit the economic damage caused by the coronavirus outbreak and tackle the loss of livelihood of millions of poor hit by an unprecedented 21-day nationwide lockdown.
- The relief package, under a newly framed Prime Minister Garib Kalyan Yojana, aims to alleviate the financial pain faced by migrant workers, farmers, urban and rural poor and women.
- As part of the lockdown to stem the spread of the deadly virus, the government has stopped public transport, airlines and construction work, bringing to a halt most economic activities and leaving millions of workers in the informal economy without a livelihood.
- Finance Minister of India, Nirmala Sitharaman said about 2.2 million health professionals at the frontlines of fighting the Covid-19 outbreak, including doctors, nurses, ASHA workers, paramedics, sanitation workers will be provided medical insurance cover of ₹50 lakh per person. About 800 million people will get 5 kg of wheat or rice each month for the next three months for free over and above the 5kg they already get. Besides, 1kg of pulses for each household will also be given for three months.
- Making a series of announcements on cash transfers for various sections of the society, Sitharaman said under the PM Kisan scheme, the first installment of ₹2,000 will be transferred to the accounts of 86.9 million farmers in April. The scheme provides ₹6,000 per year to eligible farmers. Under MGNREGA, regular wages will be hiked from ₹182 per day to ₹202 per day, benefitting 50 million families. The hike in wage is expected to give additional income of ₹2,000 per worker. To the eligible senior citizens, widows and handicapped, a one-time amount ₹1,000 will be transferred in two installments over the next three months, benefitting 30 million people.
- Women who often have fewer economic choices to make are a major beneficiary from the announcements. A one-time transfer of ₹500 per month for next three months to the Jan Dhan accounts of 200 million women will be made. Women of 83 million BPL families will be provided free cooking gas cylinders for three months under the Ujjwala scheme. Collateral-free loans provided to women self-help groups have also been doubled to ₹20 lakh for 6.3 million such groups, which will benefit 70 million households.
- Addressing the concern of workers in the organized sector who are at risk of losing their jobs due to the shutdown, Sitharaman said government will bear the cost of the provident fund contributions,

both of the employer and employees—12% each—for the next three months for those establishments which have up to 100 employees and 90% of whom are earning less than ₹15,000 per month as salary. Provident fund scheme regulation will be amended to allow non-refundable advance of 75% from the provident fund for contingency expenditure or three months of wages whichever is lower, benefitting 48 million workers.

- The central government will direct state governments to use the existing welfare fund with ₹31,000 crore reserves to provide assistance to 35 million construction workers to protect them from economic disruption.
- The government has said it would pay both the employees' and the employers' PF share (24% of the basic salary) for three months. But this applies to only companies that have fewer than 100 employees of whom 90% earn below Rs 15,000. This will cover 16% of all PF account holders or 1.6% of India's workforce.

2.1 The three important schemes carried out by the government are: -

- . Pradhan Mantri Jan Dhan Yojana (PMJDY)
- . Pradhan Mantri Kisan Samman Nidhi (PM-KISAN)
- . Pradhan Mantri Gareeb Kalyan Yojana

Table 1

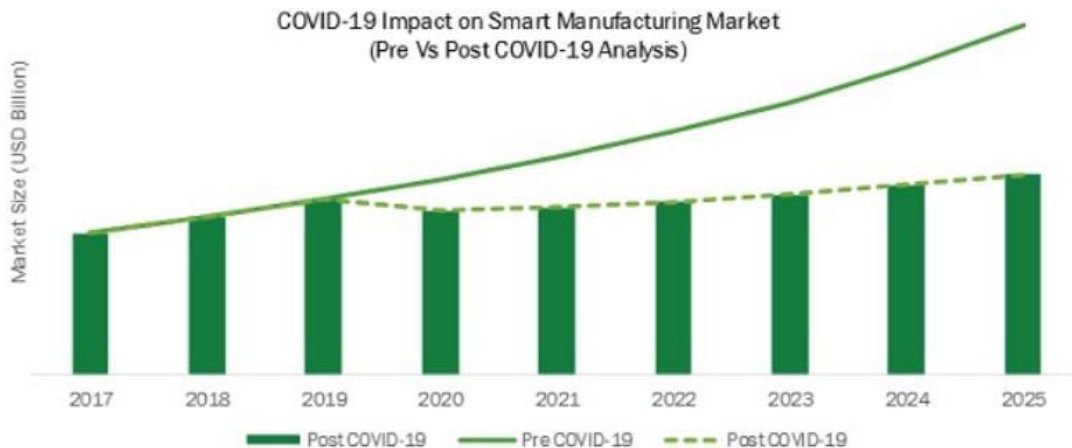
Programmes Announced	
Benefit	Findings
Provident Fund Withdrawals	No additional spending. EPFO rules already allow for withdrawal of up to 75% wages after factory-closure and up to 100% if unemployed for a month.
Provident Fund Payments	Covers only 16% of PF account holders
MGNREGS Wage Increase	Revised wage lower than average wage being paid by states.
Foodgrain benefits	No implementation roadmap given the lockdown
Free cooking gas cylinders	No implementation roadmap given the lockdown
District Mineral Foundation	No additional spending. Funds to help miners and mining-affected communities being diverted.
Cash transfer to Women with Jan Dhan Accounts	Rs 500 given to every woman but the amount is too low to run a household, experts say.
Cash transfer to farmers under the PM Kisan Nidhi	No additional spending. Payments are only being advanced.
Assistance to construction workers	State governments will utilise Rs 31,000 crore of the construction welfare fund to support 35 million construction sector workers. Includes only registered workers and not every worker is registered.
Cash transfer to the disabled	Unclear if benefits are in addition to existing cash transfers
Cash transfer to widows	Unclear if benefits are in addition to existing cash transfers



Figure
6

3. INDUSTRIAL SCENARIO BEFORE THE PANDEMIC

- Post COVID-19, the global smart manufacturing market size is estimated to grow from USD 181.3 billion in 2020 and projected to reach USD 220.4 billion by 2025, at a CAGR of 4.0%. The estimation for 2020 is down by ~16% as compared to pre-COVID-19 evaluation.
- Factors that drive the growth of the smart manufacturing market include the increasing demand for smart manufacturing products & solution propelled by COVID-19, the importance of digital twin in maintaining operations within the manufacturing ecosystem, and the emerging & expanding role of collaborative robots in healthcare and manufacturing sectors.



(Figure 7)

- Due to the negative impact of COVID-19, some of the non-medical manufacturing companies have started manufacturing medical-related products such as masks, ventilators, and related components, sanitizer, and others. This is one such way to minimize the impact of COVID-19 by the manufacturing companies. However, this is not a long term strategy for survival, and companies have to focus on innovation to survive the pandemic.
- Manufacturing execution systems offer companies the ability to monitor real-time production and other operations of manufacturing plants. This greatly reduces the need for onsite, and shop floor employees, thereby abiding by the lockdown and social distancing mandates to fight COVID-19. During Post COVID-19, the market for MES is expected to register a larger market size in 2020 as compared to 2019; however, since manufacturing industries have taken a major hit, it will be challenging to attain the market size estimated pre-COVID-19 by 2025.
- The Indian economy is expected to lose over ₹32,000 crore (US\$4.5 billion) every day during the first 21-days of complete lockdown which was declared following the coronavirus outbreak. Under complete lockdown less than a quarter of India's \$2.8 trillion economy is functional. Up to 53% of businesses in the country will be significantly affected. Supply chains have been put under stress with the lockdown restrictions in place; initially there was a lack of clarity in streamlining what is an "essential" and what isn't. Those in the informal sectors and daily wage groups are the most at risk. A large number of farmers around the country who grow perishables are also facing uncertainty. Various businesses such as hotels and airlines are cutting salaries and laying off employees.
- Most of the small scale as well as the large scale industries assumed that the growing pandemic would not affect their economy to a great extent. But, with this increasing period of total lockdown, there seems to have been a drastic change in the companies' profits and the market shares as they are seen to be dropping day by day.
- China accounts for close to 30 per cent of global exports of electronics and electronic components. This significant dependence or, in some cases, over-dependence on China is hurting the global economy and companies are now on a lookout for alternative production hubs.

- Now for many companies, the shift from China began prior to the Covid-19 outbreak, thanks to the rising input costs and the US-China trade war. The virus just added fuel to the fire, and with the disruption caused by it likely to persist until mid-April, the manufacturing companies are staring at an imminent crisis. This has had a catalytic impact on companies looking to relocate their production hubs.
- Every industry is different. Hence it is vital to understand the diverse need of these businesses and focus on specific sectors (such as pharma and automotive), which could yield greater and faster gains. These steps are eminently feasible, with first steps like the adoption of national logistics policy already in progress.
- The movement of companies away from China to other less-developed countries would trigger a new wave of industrialization. Consequently, the expansion of the manufacturing hub linked with global supply chains would increase not only productivity but also create large-scale employment.

3.1 IMPACT ON INDIAN ECONOMY

India's real GDP decelerated to its lowest in over six years in 3Q 2019-2020, and the outbreak of the COVID-19 posed fresh challenges. Steps taken to contain its spread, such as nationwide restrictions for 21 days and a complete lockdown of states, have brought economic activity to a standstill and could impact both consumption and investment. While Indian businesses, barring a few sectors, can possibly insulate themselves from the global supply chain disruption caused by the outbreak due to relatively lower reliance on intermediate imports, their exports to COVID-19 infected nations could take a hit. In sum, the three major contributors to GDP—private consumption, investment and external trade—will get affected.



(Figure 8)

3.1.1 Scenario 1: Quick retraction across the globe including India; by end April to mid-May

- China has Significantly brought down the number of new cases and its manufacturing sector is all set to resume normalcy. Other nations also largely contain the spread of COVID-19 pandemic and large fiscal and monetary stimulus unveiled will start to work sooner than expected, which will raise hopes of a solid recovery in the second half of 2020. In this case, India's growth for 2020-21 may be in the range of 5.3 to 5.7 per cent.

3.1.2 Scenario 2: While India is able to control COVID-19 spread, there is a significant global recession

- Even under the scenario, the impact on India's growth in terms of global spillovers will be meaningful, owing to India's integration with the global economy. So, India's growth will be lower than scenario 1: the expected range is 4-4.5 per cent.

3.1.3 Scenario 3: COVID-19 proliferates within India and lockdowns get extended

- This would be double whammy for the economy, as it will have to bear the brunt of both domestic and global demand destruction. Prolonged lockdowns would exacerbate economic troubles. India's growth may fall below 3 per cent under this scenario.

3.1.4 Demand-side Impact

- Private consumption: The lock-down is likely to have a sizeable impact on the economy, most significantly on consumption, which is the biggest component.
- It Includes the Sectors like: -
 1. Coal India Production
 2. Thermal Generation
 3. Hydro Generation
 4. Motorcycles, Scooters
 5. Passenger Vehicles
 6. Petrol, Diesel

Private final consumption expenditure by purpose	Share, per cent
Food and non-alcoholic beverages	26.3
Alcoholic beverages, tobacco and narcotics	1.9
Clothing and footwear	5.8
Housing, water, electricity, gas and other fuels	13.7
Furnishings, household equipment and routine household maintenance	3.2
Health	4.5
Transport	17.6
Communication	2.7
Recreation and culture	0.8
Education	4.0
Restaurants and Hotels	2.2
Miscellaneous goods and services	17.2

- **Abrupt stop of urban activity** could lead to a steep fall in consumption of non-essential goods
- The impact would be even more severe if domestic supply chain disruption caused by the 21-day lockdown were to affect the availability of essential commodities

(Table 2)

- Informal sector: Top five states with highest urban informal workers (non- agriculture)
 1. Vegetable Market
 2. Fish Market
 3. Sales Vendors
 4. Child Toys Vendors
 5. Different Errands

States	Percentage share of informal workers (non-agriculture)
Rajasthan	54.8
Punjab	51.8
Andhra Pradesh	51.0
Chhattisgarh	49.0
Gujarat	48.4

(Table 3)

- Around 37 per cent¹ of regular wage/salaried employees in urban India are informal workers (non agriculture), who will face uncertain income following the stalling of urban activity
- INR1.7 trillion² stimulus package, focused majorly on cash transfer and food security, was unveiled.

3.1.5 Supply-side impact

Shutdown of factories and the resultant delay in supply of goods could result in a shortage of raw materials in China for companies largely importing from there.

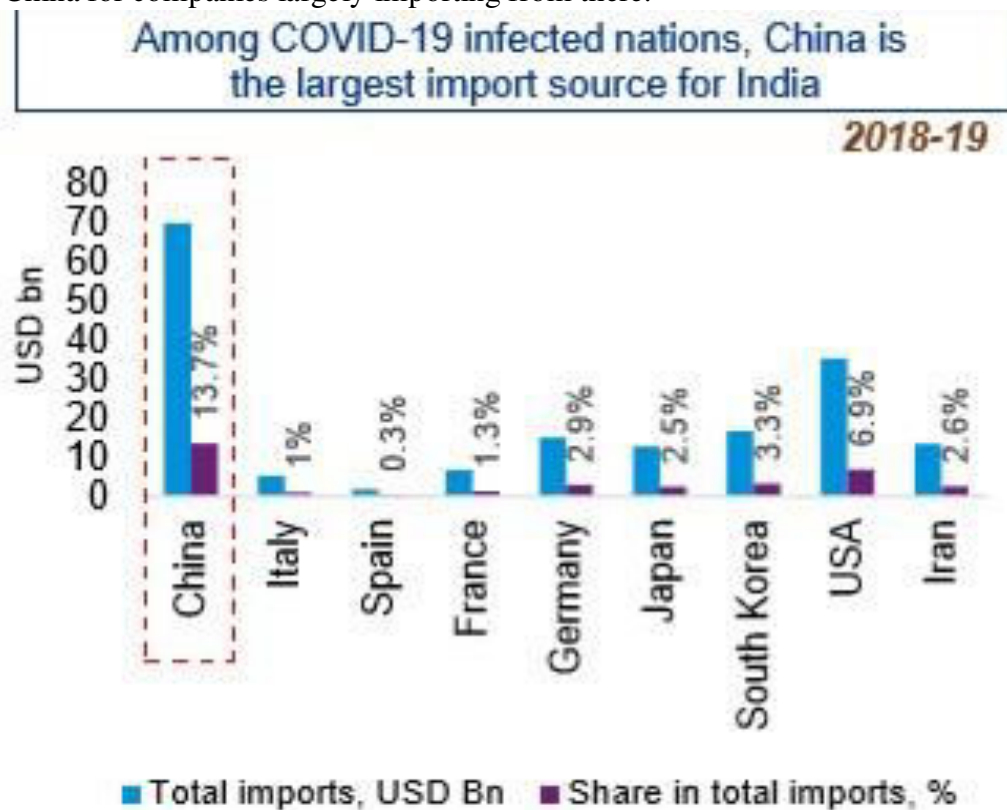
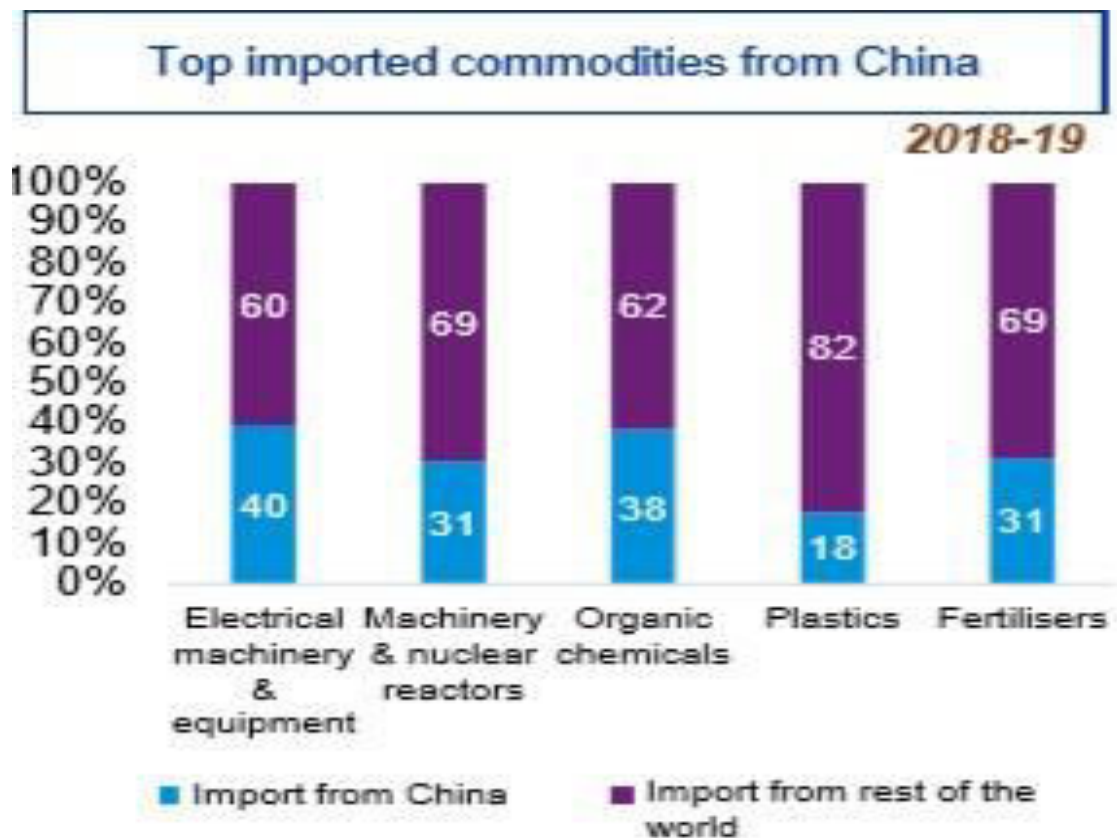
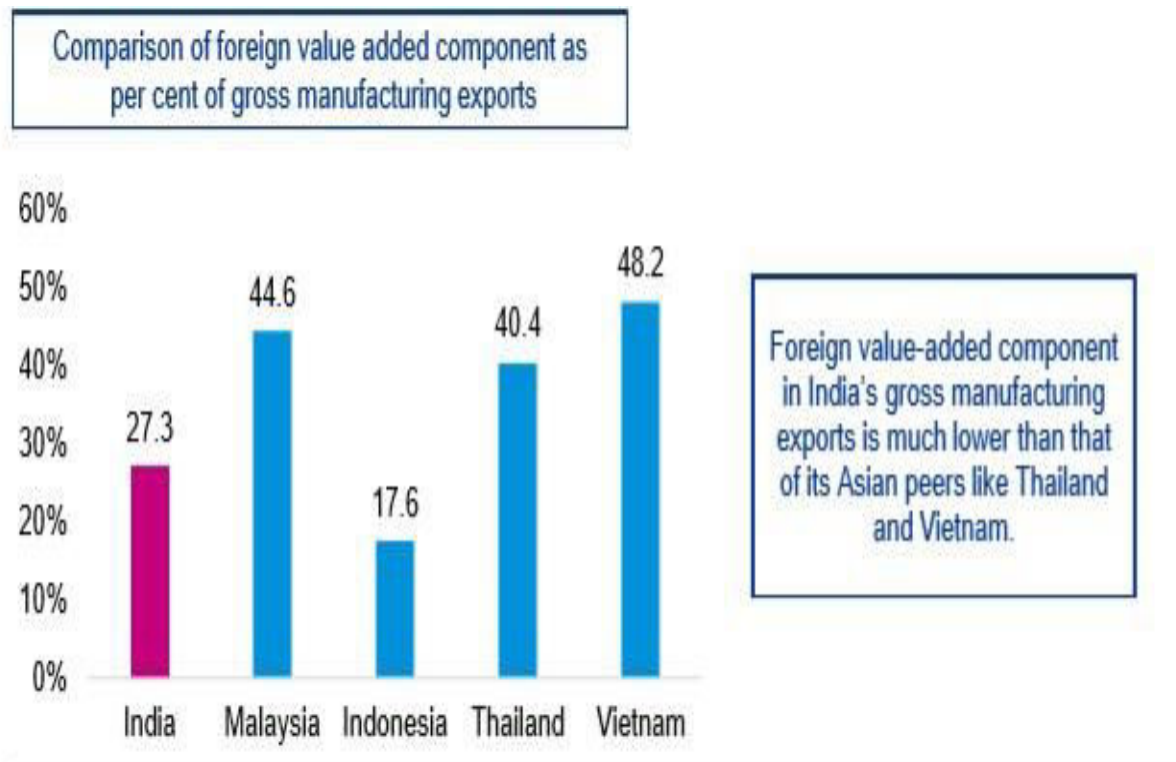


Figure
9



(Figure 10)

- It shows there is nothing much difference in the data of electrical machinery & equipment between China & ROW
- China is also showing competitive behavior in Nuclear reactors & Fertilizers
- But in Plastics China is way different in comparison to the ROW
- China's Manpower is really strong as compared to ROW
- This figure shows the lasting comparison of China and ROW



(Figure 11)

While a disruption in output in China could impact some Indian industries, the economy could be relatively insulated given its low reliance on intermediate goods from China as well as the common practice in Indian firms of stockpiling inventory. Headwinds are more likely on account of the demand-rather than supply- shocks in countries affected by COVID-19.

Now that we have seen an overall impact on the Indian economy, let's see the impact of COVID-19 on some of the industrial sectors and what can we do to overcome the problem and ensure a rapid growth in these sectors after the cool-down of this global pandemic.

4. Impact on auto and auto components

4.1 Sector Overview (Table Format)

Sector contribution to GDP and employment	<ul style="list-style-type: none"> Automobiles - 7.1 per cent, Auto components - 2.3 percent ~40 million
Key export markets	U.S., Mexico, Bangladesh, African region, and Asia.
Key source countries for imports	China, Germany, South Korea, Japan and Thailand
Major auto clusters in India	Chakan, Maharashtra; Oragadam, Tamil Nadu; National Capital Region (NCR), Sanand, Gujarat.
FDI equity inflows (per cent of total)	5.2 per cent (Apr 2000 – Dec 2019)

(Table 4.1)

4.2 Current and Potential Impact on Sector (Table Format)

Parameter	Low	Med	High	Unkn own	Comments
Supply-side					

Price variations of key raw materials		✓			Short-term fluctuations witnessed in prices of raw materials
Production shutdown			✓		Automotive sector was already facing weak demand; production shutdown across the country due to the pandemic will significantly impact the sector further
Cash flow constraints			✓		General liquidity shortfall in the sector due to Non-Banking Financial Companies (NBFCs) and banking sector situation leading to an impact on sales
Supply chain disruption			✓		China accounts for around 25 per cent of India's automotive part imports ² . Disruption in supply of raw material and other critical components have affected imports
Imports (if applicable)			✓		
Labour force			✓		Availability of contract labour for operations and support functions may be an issue even after the situation normalizes
Demand-side					
Lockdown/restrictions impact			✓		
Consumer sentiment			✓		Consumers have been postponing their vehicle purchase decisions owing to uncertainty surrounding the pandemic.
Exports (if applicable)			✓		Global slowdown and production shutdown in key markets affecting exports

(Table 4.2)

4.3 Key Policy Recommendations (Tabular)

Key policy recommendations		
Recommendations	Short term	Medium to long term
Tax and compliances related	<ul style="list-style-type: none"> • Tax booster in the form of short-term GST rate cuts to increase the demand, e.g. rate cut for ICE- powered vehicles <i>*ICE - Internal combustion engine</i> • Deferment of GST payments to boost liquidity • Building trust by suspending tax audits • Efficiency in processing exporter's claims such as duty drawback, GST refund etc. • Consumer attractiveness by allowing income tax deduction on auto loan 	<ul style="list-style-type: none"> • Allow OEMs and other automotive firms to operate on previously granted approvals and licenses, given the expiry date is approaching near, for a period of 6 months. • GST rate cut for ICE- powered vehicles <i>*ICE - Internal combustion engine</i>
Easing financial stress in the sector	<ul style="list-style-type: none"> • Operational benefits in the form of wage subsidy to small industries or income support for contract workers for period of three months • Reduction in interest rates on delayed payment of tax for three months 	<ul style="list-style-type: none"> • Develop a repayment support scheme for automobile and related firms, especially the MSME dealers and auto component manufacturers and sellers.
Support for end customer	<ul style="list-style-type: none"> • Rate cut by RBI resulting in reduction in interest rates for retail customers 	<ul style="list-style-type: none"> • Fast-track the implementation of the scrappage scheme for passenger and commercial vehicles to incentivize purchase of new vehicles

(Table 4.3)

- Auto original equipment manufacturers (OEMs) will need to delay any new launches by at least a few quarters, or till sentiments improve.

- Aftermarket spending by consumers on discretionary items will be put-off due to increase in spending share of essential items including food and medicines, for the immediate period. Only essential repair related after-market services may continue, but under low demand.
- Auto components sourcing might get dearer due to disturbance in supply chain across the globe. However, Indian auto component industry can emerge in medium to long term as an alternative source of supply fully supported by policy framework.
- Continued cash flow tightening will impact the market further.
- Passenger vehicles and two/four-wheeler segment:
 - Demand likely to continue to be muted, as this segment is significantly impacted by economic/market sentiments, and consumer purchasing power.
- Commercial vehicles segment:
 - With a shutdown of all non-essential services, the demand for commercial vehicles is expected to further plummet
 - Liquidity and cash crunch have already put a dent in sales of fleet operators, which is expected to further widen in the coming months.

5. Impact on Oil and Gas Sector

5.1 Overview (Tabular Format)

Sector overview

Current and potential impact on the sector

Global presence	India is the third largest energy consumer after U.S. and China; accounted for 5.8 per cent of world's primary energy consumption in 2018 – 19
Crude oil reserves	619 MMT (2019)
Domestic crude oil production	34.2 MMT (2018 - 19)
Domestic natural gas production	32.9 BCM (2018 – 19)
Oil imports	USD 108.66 billion (INR 7,659.50 billion) (Apr 2019 – Jan 2020)
FDI equity inflows (per cent of total FDI)	3.5 per cent (Apr 2000 – Dec 2019)
Global oil demand growth (per cent)	To fall from 13.7 per cent in Q1 – 2021 to 1.2 per cent in Q2 - 2021

(Table 5.1)

5.2 Current and potential impact on the sector (Tabular)

(Table 5.2)

Parameter	Low	Med	High	Unknown	Comments
Supply-side					
Price variations of key raw materials			✓		Crude prices have seen a significant drop due to price war and supply issues. COVID-19's impact has been less direct
Production shutdown		✓			Lesser impact as oil and gas is essential. No manpower shift or opex impact but future capex impact is expected
Labour force		✓			
Cash flow constraints			✓		Lesser revenues and extended credit to customers//suppliers likely to lead to potential cashflow impact
Supply chain disruption		✓			Some impact on crude due to Very Large Crude Carriers (VLCC) shipping but may not be as much on oil and gas, as these are supplied in pipeline, and only the last mile on road. Goods transport is open as it is an essential service
Imports (if applicable)			✓		Crude prices have fallen so India import bill will reduce
Demand-side					
Lockdown/restrictions impact			✓		Demand slowdown from customer side owing to limited travel and reduced consumption leading to lower refinery throughout gross refining margin (GRM) spreads and higher inventory buildup
Consumer sentiment		✓			Sentiment is muted and uncertain as consumers are not sure when the pandemic will pass and whatshall be its potential impact on economy, their incomeand goods pricing
Exports (if applicable)			✓		Exports of diesel, petrol to neighboring countries reduced due to lockdown and reduced demand

5.3 Key policy recommendation (Tabular format)

Key policy recommendations

Recommendations	Short term	Medium to long term
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Tax and compliances related	<ul style="list-style-type: none"> From an end-customer standpoint, government may want to reduce excise and state VAT as crude prices have dropped to ensure end-use price lowers as well at retailoutlet 	<ul style="list-style-type: none"> Roll-out of GST for fuels and gas. Other than lubricants, this category is still not underGST
Easing financial stress in the sector	<ul style="list-style-type: none"> Most oil and gas companies are cash rich but there will be some cash-flow and working capital issues in short-term. They may potentially need short-term borrowings which banks should provide as oil and gas are tagged as essential services 	<ul style="list-style-type: none"> There will be a downturn on capex investment with lower demand for short-medium term (and longer-term transition away from fossil fuel). Accordingly, there will be a need for sectoral incentives (moratoriums, debt rates, tax avoidance etc.) for newprojects
Support for end customer	<ul style="list-style-type: none"> Given potential income impact for labourers and daily wagers there wouldbe need for some price support and DBT especially for LPG,kerosene 	
Others	<ul style="list-style-type: none"> Key requirement is maintaining the reliable supply of fuels and gas, while ensuring there is not significant inventory buildup. Government may look at setting up a taskforce to ensurethis 	

(Table 5.3)

6. Impact on Apparels and Textiles

6.1 Sector Overview (Tabular)

Sector contribution to GDP and employment	<ul style="list-style-type: none"> • 2 per cent of GDP • More than 45 million (Direct jobs) in 2018-19
Key export markets	<ul style="list-style-type: none"> • Apparel- U.S., U.K., Canada, Russia, U.A.E., Italy • Cotton raw materials – Bangladesh, Cambodia and China
Key source countries for imports	<ul style="list-style-type: none"> • Bangladesh, China
FDI equity inflows in sector (per cent of total)	<ul style="list-style-type: none"> • 0.75 per cent (Apr 2000 – Dec 2019)

(Table 6.1)

6.2 Current and potential impact on the sector (Tabular)

Current and potential impact on the sector					
Parameter	Low	Med	High	Unknown	Comments
Supply-side					
Price variations of key raw materials		✓			The prices have remained stable, however the demand has been impacted
Production shutdown			✓		The sector is one of the largest employers in the country, employing over 45 million (direct jobs) ¹ and a sizeable number of contract labourers as well. The nationwide lockdown has led to temporary closures of factories and lay-offs have already begun among low-wage workers.
Labour force			✓		
Cash flow constraints			✓		
Supply chain disruption		✓			Garment manufacturers can look at local sourcing opportunities
Imports (if applicable)			✓		China is the fourth largest trading partner with India for purified terephthalic acid (PTA) and largest trading partner polyester staple fibre (PSF) ³ .
Demand-side					
Lockdown/restrictions impact		✓			Lockdown implemented recently - limited impact so far
Consumer sentiment		✓			If the situation persists, the impact would be higher
Exports (if applicable)			✓		With a drastic fall in global demand and an export ban on certain critical raw materials (those used to make masks for example), the impact on exports is considerable

6.3 Key Policy Recommendations (Tabular)

Recommendations	Short Term	Medium to Long Term
Tax and compliances related	Tax compliances deadline needs to be extended considering the nationwide lockdown and taxes need to be reviewed to minimize the impact of decline in demand	
Easing financial stress in the sector	The sector has been reeling under severe financial stress, so interest rate reduction should be considered	Credit ratings based on loan facilitation for MSME players need to be reviewed in order to make the sector lucrative.
Support for end customer	Tax reliefs need to be provided, thus boosting consumer spending	
Others	A comprehensive financial support package along the lines announces in Germany and the U.S. can be considered	Provide an adhoc concession of 5-10 per cent against the recently approved Remission of Duties or Taxes on Export Product (RoDTEP) scheme to compensate for the hitherto unreimbursed levies and taxes to the exporters

(Table 6.3)

7. Impact on Buildings and Constructions

7.1 Sector Overview (Point-wise)

- The real estate sector is one of the largest employment generators in the country and has a multiplier

effect on around 250 allied industries. This sector is expected to contribute to around 13 percent to the country's GDP by 2025 and become the third-largest globally at USD1 trillion by 2030.

- On the other hand, the residential real estate sector has witnessed poor demand and lower absorption in the past few years owing to the economic slowdown, the NBFC crisis, cynical buyer sentiment and developer defaults. This has led to higher unsold inventory across the major cities in India.
- The government introduced an Alternative Investment Fund (AIF) with a total corpus of ~USD3,570 million to bailout ~1,600 real estate projects stalled due to an acute liquidity crunch. This was expected to boost growth by steering consumption in real estate and associated sectors.
- However, the year 2019 has been a mixed bag for the Indian real estate industry, having attracted investments worth ~USD5 billion. Around 66 percent of these investments were in the commercial real estate market owing to healthy demand from private equity investors for stable rent yielding assets.

7.2 Table of current and potential impact on the sector (Tabular)

Current and potential impact on the sector					
Parameter	Low	Med	High	Unknown	Comments
Supply-side					
Price variations of key raw materials			✓		Overall halt in the manufacturing sector activity including cement, steel and other building materials.
Production shutdown			✓		Profound impact on sourcing of building material and labour

Cash flow constraints			✓		Weakening sale velocity and restricted travel would impact the cash flows in the residential, hospitality and retail segments.
Supply chain disruption			✓		Delayed construction owing to disruption in the supply chain network
Labour force			✓		Estimated job loss of ~30 per cent in the real estate sector
Imports (if applicable)				✓	NA
Demand-side					
Lockdown/restrictions impact			✓		Weakened sales within residential segment and lower footfalls for retail and hospitality segment.
Consumer sentiment			✓		FDI within commercial segment to be on hold on account of limited new leasing activity due to the existing industry shutdown and potential change in user habits.
Exports (if applicable)				✓	NA

(Table 7.1)

7.3 Key policy Recommendations (Tabular)

Key policy recommendations		
Recommendations	Short term	Medium to long term

Tax and compliances related	<ul style="list-style-type: none"> • GST tax holiday for one year for the tourism/hospitality sector. 	<ul style="list-style-type: none"> • Relaxation for project delays in the residential segment (RERA compliance) for a maximum of six months.
Easing financial stress in the sector	<ul style="list-style-type: none"> • No interest repayment for three months for developers, then extending it to 12 months. 	<ul style="list-style-type: none"> • Lending rate for realty projects to be fixed at a lower rate • NPA classification to be extended beyond 90 days for stressed projects.
Others	<ul style="list-style-type: none"> • One-year government subsidy on basic salaries for tourism/hospitality sector. 	

(Table 7.2)

8. Impact on Chemicals and Petrochemicals

8.1 Sector Overview (Tabular Format)

Sector overview

Global presence	India is sixth largest chemical and petrochemicals producer in the world, contributing to ~3.5 per cent of global chemical Industry (2018-19)
Domestic production	27.8 MMT (2018 - 19)
Domestic consumption	37.1 MMT (2018 – 19)
Domestic demand growth (past 3 years)	4.7 per cent (Petchem however, is growing much faster - expected CAGR ~9-10 per cent)
Net imports	~26 per cent of total consumption
FDI equity inflows (per cent of total FDI)	9 per cent (Apr 2000 – Mar 2019)
Global demand growth (past 3 years)	4.1 per cent

(Table 8.1)

- Petrochemical prices were already under pressure, given concerns of global overcapacity and slowdown in demand. The COVID-19 impact is further expected to exacerbate impact on the sector.
- With the weakening in crude oil prices and the cascading impact on petrochemicals coupled with uncertain domestic and global demand, petrochemicals prices are likely to remain low.

8.2 Current and Potential impact on sector (Tabular Comparison)

Current and potential impact on the sector		
Parameter	Impact	Comments
Supply-side		

Price variations in raw material feedstock	High	<ul style="list-style-type: none"> Raw material prices for petrochemicals are falling primarily driven by crude prices. Additional supply resulting from a price war between Russia and Saudi price and weakened global demand due to COVID-19 are expected to drive prices down. Supply tightness of raw material for other chemicals (especially specialty) due to production cuts in China (the major import source) could drive raw material prices higher in short-medium term
Production shutdowns	High	<ul style="list-style-type: none"> Slowdown in key downstream industries – textile and packaging (PET) due to lockdown have a ripple effect on petrochemicals demand, and also for liquid products driven by storage capacity constraints Lower production operating rates are expected for most of the chemicals as well, apart from ones in essential categories (fertilisers, pharma etc.)
Cash flow constraints	High	<ul style="list-style-type: none"> Majority of chemical producing units are SMEs and do not have a buffer to meet a sudden increase in working capital requirements. Extension of credit to customers and suppliers alongside falling revenues in the short to medium term is expected to adversely affect cash flows
Supply chain Disruption	Medium	<ul style="list-style-type: none"> Restrictions on road movement to impact domestic supply chain in short term. Also, with closing down of major ports in China, global disruption in supply chain is expected.
Labour force	Medium	<ul style="list-style-type: none"> High instance of labour migration expected in chemical sector due to uncertainty, as most of the operating units are SMEs. Issue may not be witnessed by large plants integrated with refinery units
Imports (If applicable)	High	<ul style="list-style-type: none"> Imports are expected to fall as major import sources – Middle East and China – are highly impacted by COVID-19. Additionally, uncertain short-term demand outlook in India is expected to restrain traders/importers.

(Table 8.2)

8.3 Key policy Recommendations (Tabular)

Key policy recommendations

Recommendations	Short term	Medium to long term
Additional benefits across production units and PCPIR zones	<ul style="list-style-type: none"> In order to help increase operating rates of petrochemical units, additional fiscal/non-fiscal benefits need be considered. 	<ul style="list-style-type: none"> Petroleum, Chemical and Petrochemical Investment Regions (PCPIRs) were already facing challenges in attracting investments. Strengthening of incentives around tax, energy inputs, logistics in these zones would be key to promote new CAPEX
Ease financial stress for SME and MSMEs within the sector	<ul style="list-style-type: none"> Most chemical companies and downstream petrochemical units are small/medium scale units and have minimal working capital buffer. Banking assistance would be needed to provide working capital loans on flexible and favorable terms to help them keep afloat 	<ul style="list-style-type: none"> With uncertain demand outlook, attractive loan/capital assistance might be required targeted at SME/MSME segment to revive market sentiments and lead to production ramp-up in future
Review of import tariffs	<ul style="list-style-type: none"> Review of import tariffs on essential feedstock for chemical companies to ensure adequate and competitive supply 	
Trade policy measures	<ul style="list-style-type: none"> Review of FTAs and anti-dumping duties to protect downstream manufacturers from dumping and inferior quality imports 	

(Table 8.3)

9. Impact on Metals and Mining

9.1 Sector Overview (Tabular Format)

Sector overview	
Sector contribution to GDP	2.4 per cent of GVA in 2018 - 19
Export share of metals and minerals	Iron and steel (3 per cent), gold and other precious metal jewellery (4.5 per cent)
Growth in production of major minerals	25 per cent (2018 – 19)
Mining growth	2.9 per cent (2018-19); 4.4 per cent (Jan 2020)
Index of eight core growth (per cent)	Coal (-2.4 per cent), steel (5.3 per cent) during Apr 2019 – Jan 2020
FDI equity inflows (per cent of total FDI)	2.51 per cent (Apr 2000 – Dec 2019)
Credit growth	Mining and quarrying (-3 per cent), basic metal and metal product (-7.9 per cent)

(Table 9.1)

9.2 Current and Potential Impact on the sector (Tabular Comparison)

Current and potential impact on the sector					
Parameter	Low	Med	High	Unknown	Comments
Supply-side					
Price variations of key raw materials		✓			Indian raw material market generally de-linked from international prices – however they will decline sharply too if turnaround gets delayed beyond a month
Production shutdown		✓	✓		Metals are considered process industry and exempted from complete shutdown but has only skeletal staff operating – downstream mills are being shut down across states. If turnaround takes time, furnaces and smelters too will be shut down.
Cash flow constraints			✓		Sector highly leveraged; high labour intensity; dependent on raw materials which are mainly cash-and-carry – cash flow constraints will happen sooner than later; sales will be impacted due to distress in auto and construction sector.

Supply chain disruption	✓	✓		Other than coking coal, India is insulated from global supply chain disruption. Domestic freight disruption unlikely to extend beyond the mandatory lockdown period by Central/State governments. Initial reports indicate trucks being held back at district and state boundaries. Industry fears pilferage.
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(Table 9.2)

9.3 Key Policy Recommendations (Tabular)

Key policy recommendations		
Recommendations	Short term	Medium to long term
Tax and compliances related	<ul style="list-style-type: none"> • Subsume District Mineral Foundation (DMF), National Mineral Exploration Trust (NMET) kind of duties into GST for raw materials • Waive GST on bidding amount • Temporarily waive bidding amount payable on own mines until sector recovers • Provide relaxation in statutory and employee related payments 	<ul style="list-style-type: none"> • Rationalise taxation off freight • Increase quantum of accelerated depreciation for revival of capex-cycle • Provide legal support/develop insurance products for companies (esp. PSUs) to help them suspend statutory payment during such black-swan incidents

Easing financial stress in the sector	<ul style="list-style-type: none"> • Provide a moratorium for loan repayment (in the event of temporary closures) • Reduce cost of trade-finance • Provide wage subsidies for labour intensive mining projects 	<ul style="list-style-type: none"> • Provide special package to finance working capital loan for re-starting plants • Offer loan guarantee for investment in strategic sectors/projects
Support for end customer	<ul style="list-style-type: none"> • Immediate release of funds for projects worth INR 102 trillion under National Infrastructure Pipeline 	<ul style="list-style-type: none"> • Any support to reviving demand in auto and construction sector would benefit metal and mining companies
Others	<ul style="list-style-type: none"> • Allocate iron ore and coal mine to PSUs • Stimulus/revival packages for strategic sectors, such as automobile and airlines 	<ul style="list-style-type: none"> • Avoid allocation of mines through auctions (explore other methods like single-stage bids) • Lease allotment with pre-embedded clearances. • Develop insurance products for dealing with such situations

(Table 9.3)

9.3.1 Some of the Ores

Steel—Infrastructure, construction and automotive sectors account for ~75 percent of steel consumption in India. The steep slowdown in these sectors is likely to affect steel demand. Further, demand-side issues are likely to keep steel prices under pressure.

Aluminum and copper—About 80 percent of the aluminum is consumed by construction, transport and electrical sector. The sector is likely to see demand contract due to COVID-19 situation. Further, since aluminum prices are linked to global indices, global slowdown is likely to hit companies' realization and profitability.

Iron Ore—Iron ore sector in India was already reeling under mining lease expiry in March 2020. Demand slowdown due to COVID-19 situation will further affect prices and therefore, profitability of companies. Suddenly, the bid-price quoted for the mines in the auctions will appear to be too high.

Coal—Coal is an essential input to the power sector and hence supply disruptions are likely to be minimal. Supply of coal at notified prices by CIL will limit any price impact of COVID-19. However, demand slowdown by end-use sectors, coupled with adequate inventories, will impact e-auction realization of CIL (~13 per cent⁹ of volumes).

10. Impact on Power

10.1 Sector Overview (Tabular Format)

Sector overview	
Total installed capacity	3,68,689 MW (as on 31 Jan 2020)
Budgetary allocation for power and renewable energy	INR220 billion (2020 – 21)
EoDB ranking: getting electricity	22 nd among 190 countries (2020)
WEF ranking	76 th among 115 countries in Energy Transition Index
FDI equity inflows (per cent of total FDI)	3.21 per cent (Apr 2000 – Dec 2019), equity inflows
Index of Industrial Production (IIP): electricity growth	0.9 per cent (Apr 2019 – January 2020)
Peak deficit (per cent)	0.8 per cent (2018 – 19)
Power generation capacity (fuel-wise) share	Thermal (62 per cent), renewable energy sources (23 per cent), hydro (13 per cent), and nuclear (2 per cent)
Power generation capacity (sector-wise) share	Private (47 per cent), state (28 per cent), and central (25 per cent)

(Table 10.1)



(Figure 12)

10.2 Current and Potential Impacts on the sector (Tabular Comparison)

Parameter	Low	Med	High	Unknown	Comments
Supply-side (electricity generation only)					
Price variations of key raw materials		✓			Limited impact on coal prices. Changes in coal costs may pass through. However, solar module prices due to short supply may increase. This may affect bid based projections under construction.
Production shutdown	✓				Essential service, hence limited impact. Cost increase may be witnessed if sustained over a longer period.
Cash flow constraints			✓		Revenue collection may be impacted across categories.
Supply chain disruption	✓				Coal logistics may have limited impact, however supply chain will be affected.
Labour force	✓				NA
Imports (if applicable)		✓			NA

Demand-side (electricity demand)					
Lockdown/restrictions impact	✓				Domestic consumption (currently at 25 per cent share) likely to increased.
Consumer sentiment		✓			Sustained lockdown to adversely impact industrial, commercial and traction demand (50 per cent share)
Exports (if applicable)				✓	NA

(Table 10.2)

10.2.1 Pointwise Description of the Current and Potential impact on the sector

• Electricitydemand

- Already subdued demand (5-year CAGR of 4.9 per cent) will reduce further on account of shutdown (ifsustainedoverlongerperiod)ofindustrialandcommercialactivity(whichcontributeto~50per cent demand)
- Peak power and total energy demand have dropped by 28-29 per cent in first week of lockdown (between18thand27thMarch).Power systemneedtoprepareforvolatilitythatmayimpactgridsecurity,leadingtopotentialoutages and blackouts.

• Electricitysupply

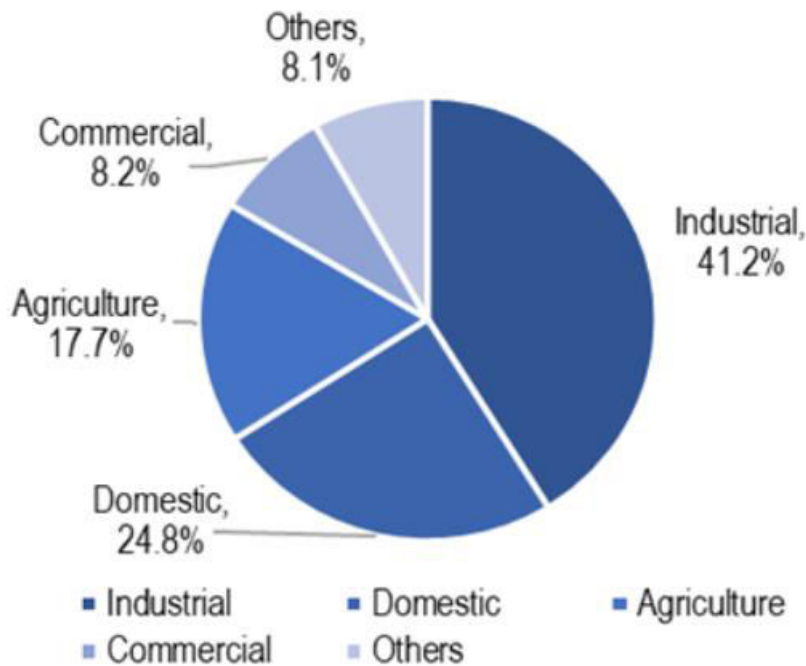
- Beingessentialservice,powergenerationislesslikelytobeimpacted.Surplusavailabilityof power can be used to balance affected generation. Coal mining disruption due to COVID-19 may lead to coalshortageinsomeplants,affectingregionalpoweravailability.Albeit,lowerdemandmay offset any supplyconstraints.

• Capital Expenditure(Capex)

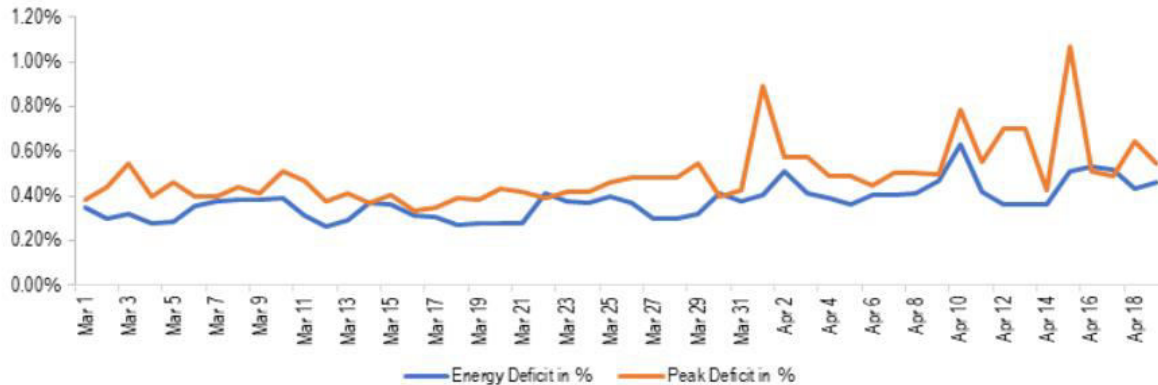
- About62GWthermal,11GWREandtransmissionprojectsunderconstructionlikelytogetdelayed withprolongedlockdown,therebyimpactingdebt servicingandprojectviability
- Slowgrowth,financinggapsandsupplychaindisruptionmayimpedeREcapacityaddition.

• Revenue/Cashflow

- Collection delays and defaults likely by consumers (lower slab domestic categories due to wage disruption;andcommercialandindustrialdefaultsdue tobusinessdiscontinuity)whichwillputmore pressure on financially ailing.



(Figure 13: Power consumption by consumer segment)



[Figure 14: Energy deficit and peak deficit between March 1, 2020 and April 19, 2020 (in %)]

Energy Sources	Average Generation			Contribution to Total (in %)	
	Mar 1-Mar 24	Mar 25-Apr 19	% change	Mar 1-Mar 24	Mar 25-Apr 19
Coal	2,511	1,873	-25%	72.5%	65.6%
Hydro	302	331	10%	8.7%	11.6%
Renewables (of which)	325	312	-4%	9.4%	10.9%
a. Solar	157	162	3%	4.5%	5.7%
b. Wind	97	96	0%	2.8%	3.4%
Gas, Naptha, Diesel	132	146	11%	3.8%	5.1%
Nuclear	113	114	1%	3.3%	4.0%
Lignite	82	78	-5%	2.4%	2.7%
Total	3,465	2,854	-18%	-	-

10.3 Key Policy Recommendations (Tabular)

Key policy recommendations	
Aspect	Measures
Business continuity and customer services	<ul style="list-style-type: none"> • More awareness on scheduled/preventive outages to avoid panic • Suspension of non-essential processes-disconnections, maintenance shutdowns, etc. • Deferring billing cycle, temporarily connecting disconnected users • Priority support to hospitals, isolation centres and other sensitive services.
Safeguards and resilience	<ul style="list-style-type: none"> • Insulating critical operations (e.g. control room) and emergency response staff to ensure continuity of supply • Contingency measures and advanced training to manpower, management of demand volatility and large scale power outages among other occurrences.
Easing financial stress in the sector	<ul style="list-style-type: none"> • Stimulus packages/financial support for utility to continue service to customers (similar to those introduced in U.K., France, Canada and U.S. etc.) • Campaigns for revenue collection through digital means (where collection is possible) • Special schemes for management of arrears of marginal consumers in cases of non-payment increase • In case of prolonged lockdown-reducing delays in notification of revised tariffs by conducting public consultation and submission of comments online or announcing provisional tariff subject to further review at a later date.
Others	<ul style="list-style-type: none"> • Creation of a well-equipped emergency response team to include advanced trainings; and proactive maintenance of near failure equipment (incl. preparation of contingency plan in case of prolonged disruption) • Isolated control room operation and critical operation team • Postponing non-essential maintenance • Late fee waiver, support to consumers unable to pay bills • Increased awareness targeting utility employees and customers.

(Table 10.3)

11. Impact on Aviation Sector

11.1 Sector Overview (Point format)

- The pandemic and subsequent lockdown have significantly impacted economic activities, with aviation and tourism among the worst affected segments. The International Air Transport Association (IATA) said its latest estimates indicate a worsening of the country impact from the COVID-19 crisis in the Asia-Pacific region.
- About India, IATA said the pandemic is expected to potentially impact 29,32,900 jobs in the country's aviation and its dependent industries. The passenger traffic has declined by 47 per cent. Besides, the grouping noted that the revenue impact for airlines operating to and from the Indian market would be USD 11.221 billion (over Rs 85,000 crore). This refers to the fall in passenger revenue compared to 2019.
- On April 14, IATA said COVID-19 crisis would see global airline passenger revenues drop by USD 314 billion this year, a fall of 55 per cent compared to 2019. Airlines in the Asia-Pacific region would record the largest revenue drop of USD 113 billion in 2020 compared to last year. These estimates are based on a scenario of severe travel restrictions lasting for three months, with a gradual lifting of restrictions in domestic markets, followed by regional and intercontinental.

11.2 Point-wise description of the current and potential impact on the sector

- **Scenario 1: Limited Spread**
 1. This scenario includes markets with more than 100 confirmed COVID-19 cases (as of 2 March) experiencing a sharp downturn followed by a V-shaped recovery profile. It also estimates falls in consumer confidence in other markets (North America, Asia Pacific and Europe).
 2. The markets accounted for in this scenario and their anticipated fall in passenger numbers, due to COVID-19, as are as follows: China (-23%), Japan (-12%), Singapore (-10%), South Korea (-14%), Italy (-24%), France (-10%), Germany (-10%), and Iran (-16%). Additionally, Asia (excluding China, Japan, Singapore and South Korea) would be expected to see an 11% fall in demand. Europe (excluding Italy, France and Germany) would see a 7% fall in demand and Middle East (excluding Iran) would see a 7% fall in demand.
 3. Globally, this fall in demand translates to an 11% worldwide passenger revenue loss equal to \$63 billion. China would account for some \$22 billion of this total. Markets associated with Asia (including China) would account for \$47 billion of this total.
- **Scenario 2: Extensive Spread**
 1. This scenario applies a similar methodology but to all markets that currently have 10 or more confirmed COVID-19 cases (as of 2 March). The outcome is a 19% loss in worldwide passenger revenues, which equates to \$113 billion. Financially, that would be on a scale equivalent to what the industry experienced in the Global Financial Crisis.
 2. Oil prices have mitigated significantly (-\$13/barrel Brent) since the beginning of the year. This could cut costs up to \$28 billion on the 2020 fuel bill (on top of those savings which would be achieved as a result of reduced operations) which would provide some relief but would not

significantly cushion the devastating impact that COVID-19 is having on demand. And it should be noted that hedging practices will postpone this impact for many airlines.

3. Global passenger traffic grew by just over 1.9 per cent in January 2020, down from 4.9 per cent a month prior. The industry's 12-month rolling average reached an increase of 2.9 per cent, temporarily propped up by the middling growth observed in 2019.

MARKET	IMPACT ON PASSENGER NUMBERS	IMPACT ON PASSENGER REVENUES
Australia, China, Japan, Malaysia, Singapore, South Korea, Thailand, Vietnam	-23%	-\$49.7 billion
Rest of Asia Pacific	-9%	-\$7.6 billion
Austria, France, Italy, Germany, Netherlands, Norway, Spain, Switzerland, Sweden, the United Kingdom	-24%	-\$37.3 billion
Rest of Europe	-9%	-\$6.6 billion
Bahrain, Iraq, Iran, Kuwait, Lebanon, the United Arab Emirates	-23%	-\$4.9 billion
Rest of Middle East	-9%	-\$2.3 billion
Canada and US	-10%	-\$21.1 billion

(Table 11)

11.3 Key Policy Recommendations (Point-wise)

- The global aviation industries have to document a series of provisions in a number of areas to enhance preparedness in its Airport Preparedness Guidelines for Outbreaks of Communicable Diseases publication.
- These are related – but not limited to – elements like communication, inbound and outbound screening, emergency response and coordination with relevant authorities. Airports have to also undertake additional measures related to hygiene, work-from-home policies and health declarations.
- Air travel is essential to global trade, and that's why we must find ways to continue travel in the safest possible way.
- The first priority of all our members is the health and safety of their people and passengers. Airports have also worked closely with airlines, particularly where they had concerns over individual travellers prior to the virus spreading.
- The aviation industries from all over the world should limit the interaction and practice social distancing, as well as enhancing cleaning procedures within the guidelines provided by the Centers for Disease Control and Prevention (CDC).

- Airports have closely followed the advice of the four national public health authorities by putting in place screening where requested, but also widespread information campaigns on how travellers should respond to the virus.
- Finally, airports have learned how to act in these particular situations of a global pandemic before and have performed their duties really well. Tourists and travelers should cooperate with the airline personnel's in order the decrease the spread of the virus.

12. Impact on Telecommunication Services

12.1 Sector Overview and Potential Impact (Point-wise)

- Given the quick spread of COVID-19 and an increase in countries imposing restrictions on movement, our daily lives have required more time at home and more usage of data for work and leisure, resulting in a significant impact on the Telecom sector.
- Internet data volumes have increased as much as 60% during the day and 20% in the evening. Landline and wireless voice traffic has surged by up to 200% at peak times while conference calling is up 250%. Overall data volume across its networks has increased 19% compared to pre-COVID levels. While data usage remains at elevated levels, the changes in how people are using the network has stabilized.
- As per Nokia, traffic growth has become more manageable. There is continued dramatic growth in videoconferencing apps; some now showing a 700% increase from February 1. Overall traffic volumes have risen by >50% with major regional differences, but mostly visible during non-peak hours as a result of people staying at home. It is observed that there is an unprecedented growth in global internet traffic. Most networks see 30–45% growth over a year; Nokia says they've already seen 20–40% peak increase in impacted regions over the last four weeks.
- Downstream bandwidth traffic has increased by 20.1% since March 1 and 4.3% the week of March 21-28. Upstream traffic during the same periods has increased by 27.7% and 7.3%, respectively. As

a result, Google Meet's daily usage is more than 25 times what it was in January. Despite this growth, the demand has been well within the bounds of our network's ability.

- All these impacts have led to profits to most of the telecom companies even though they have a negative impact that the internet traffic has been increased. Apart from this factor, during this period of global lockdown, we can say that the usage of these facilities has actually increased during the pandemic.

12.2 Key Policy Recommendations (Point-wise)

- The telecommunication companies should upgrade the number/size of interconnection points with other operators. By doing this, they would have increased the capacity of some streaming provider caches by 60%, which reduces core and international bandwidth consumption.
- Companies should implement price cuts of up to some percentage on their various monthly/daily/6-monthly data bundles and launch free access to certain websites, including health sites and e-school platforms. This can create a healthy awareness among the users and they can protect themselves from the grasp of the corona-virus.
- Bandwidth settings should be higher than the normal or default so that the users could experience continuous browsing or communicating even with the high amount of the internet traffic.
- All the streaming channels like Youtube, Netflix, Amazon should reduce their streaming quality temporarily in order to lessen the strain which is being put on the broadband networks.

13. Impact on Nuclear Sector

13.1 Sector Overview (Point-wise)

- The nuclear industry is taking action in response to the global COVID-19 pandemic caused by the SARS-CoV-2 coronavirus to protect workers and reduce transmission of the virus. A strong safety culture already exists in the nuclear industry worldwide.
- Maintaining reliable electricity supplies and 'keeping the lights on' is vital. Nuclear generation supplies around 10.5% of electricity worldwide and contributes to electricity generation in over 30

countries. In many countries nuclear employees have been identified as among the key workers that are essential to maintaining important infrastructure.

- Additionally, in the US, for example, critical infrastructure designation has been extended to nuclear plant, supply chain, fuel services, and outage support personnel. The measures taken by governments around the world to combat COVID-19 have resulted in a fall in electricity consumption in some countries – typically reductions of 10-20% from expected demand. Depending on national circumstances, selected nuclear plants can reduce output or stop generation where any reduction in overall demand requires it.
- The reduction in industrial and other activity in countries taking countermeasures against COVID-19 is reducing overall electricity demand.

13.2 Potential impacts on the sector (Point-wise)

- During this ongoing Covid-19 crisis, apart from fossil fuel and renewable power technologies, nuclear reactors are also playing a crucial role in a number of countries in maintaining electricity supplies. Nuclear technology is a major baseload power-generating source and accounted for 10.3% of global power generation in 2019. The nuclear power sector is growing in many countries as demand for electricity increases. Some 31 countries are currently operating nuclear reactors for their electricity generation.
- The nuclear industry has not been at the forefront of remote working practices up until now but has adapted quickly in recent weeks. Construction sites are continuing to meet milestones with fewer workers on site, and the number of meetings we are all physically attending has been drastically curtailed (although we are rapidly replacing them with video calls!).
- The result is that there have not been large-scale reductions in workforce across the nuclear industry, and there are few industries in a better position to adapt to the new ‘social-distancing’ workplace environment that will become the norm as we come out of this crisis.

13.3 Key Policy Recommendations (Point-wise)

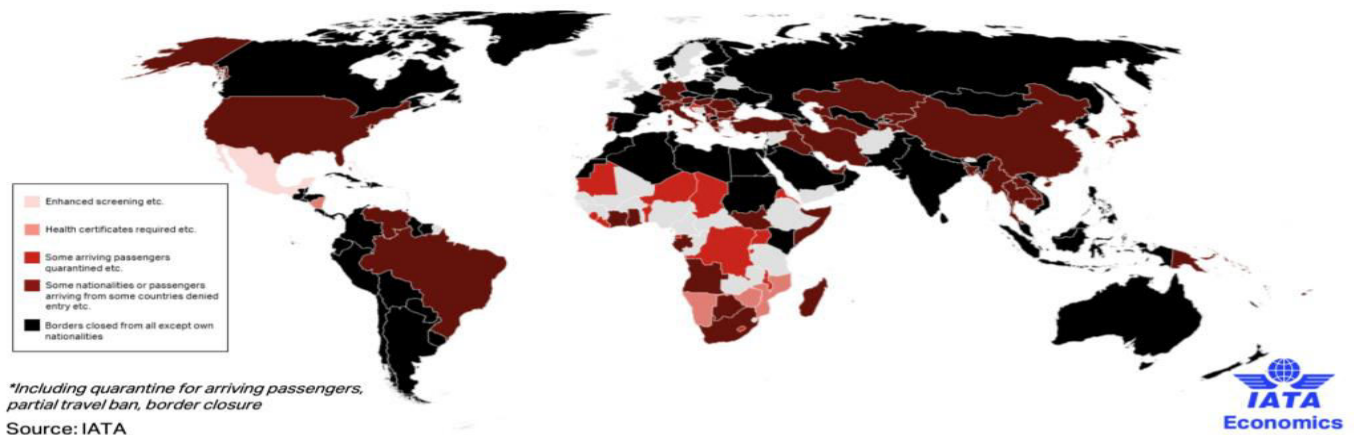
- There are four priorities that will be paramount for countries after the COVID-19 crisis - economic recovery, job creation, energy security and addressing climate change. Nuclear energy provides a solution to all four of these priorities.
- 1. Creating jobs to boost the economy and build essential national infrastructure in the form of nuclear power plants and used fuel solutions that support energy security and reduce carbon emissions would contribute perfectly to the solution. It will take a while for this action to filter down to large-scale job creation.
- 2. Energy policy changes and unlocking of funding sources for new nuclear plants and used fuel facilities in the short term will lead to some new jobs being created in the coming years for work related to modernization and plant life extension, and then on a larger scale over the next 5-10 years as new nuclear facilities start to be built. These will be highly skilled jobs delivering long-term projects and supporting facilities with long lifetimes, creating a competent workforce that will bring down the cost of future construction of new nuclear.
- 3. Commitment to invest in nuclear from governments and developers will provide the signal for investment throughout the supply chain in construction and manufacturing capabilities as well as skills development. This will lead to more high-value jobs, although the supply chain will need to see really firm commitment to give them the confidence to invest.
- An immediate action for the nuclear industry that will have long-term workforce benefits is to collectively work on the employer brand of the industry.

14. Impact on Travel Agencies

14.1 Sector Overview (Point-wise)

- One of the worst affected sectors in the world economy is the Travel and Tourism sector. The global pandemic resulting from the outbreak of the novel coronavirus, COVID-19, has led to an unprecedented decline in travel. The coronavirus epidemic is putting up to 50 million jobs in the global travel and tourism sector at risk, with travel likely to slump by a quarter this year, Asia being the most affected continent.
- Government intervention is desperately needed to alleviate the bloodbath that this sector will be seeing in the near future. While relief packages are being considered for the main stalwarts of the

tourism industry, it is critical that the government also extends similar support to other supporting businesses that are equally impacted. While countries such as the UK, Australia, UAE and Thailand have already come out with a set of directives to provide some relief to the tourism sector, India is yet to take such steps. As the entire travel industry has been pushed to the verge of collapse, the government must come out with a set of measures to aid and revive the sector.



(This image from IATA's report shows how travel restrictions due to the COVID-19 outbreak are closing down international aviation and what measures are taken by various countries to contain this virus from spreading.)

(Figure 15)

14.2 Potential impact on the sector (Point-wise)

- The World Travel and Tourism Council has warned the COVID-19 pandemic could cut 50 million jobs worldwide in the travel and tourism industry. Asia is expected to be the worst affected. Once the outbreak is over, it could take up to 10 months for the industry to recover. The tourism industry currently accounts for 10% of global GDP.
- This impact would depend on how long the epidemic lasts and could still be exacerbated by recent restrictive measures, such as those taken by the U.S. administration on travel to Europe. Around 850,000 people travel each month from Europe to the United States, equivalent to a \$3.4 billion monthly contribution to the U.S. economy. Of the 50 million jobs that could be lost, around 30 million would be in Asia, seven million in Europe, five million in the Americas and the rest in other continents.
- The equivalent to a loss of three months of global travel in 2020 could lead to a corresponding reduction in jobs of between 12% and 14%, the World Travel and Tourism Council (WTTC) said,

also calling on governments to remove or simplify visas wherever possible, cut travel taxes and introduce incentives once the epidemic is under control.

- The closing down of the iconic Taj Mahal last month is an evocative symbol of how India's travel and tourism landscape has changed due to Covid-19. The country's travel and tourism sector, more dependent than others on the free and confident movement of people, is staring at millions of disappearing jobs and a grey future.
- The Indian tourism and hospitality industry is staring at a potential job loss of around 38 million, which is 70% of the total workforce.
- As many as nine million jobs – six times the population of Goa – in the travel and tourism sector are at risk in India, according to the World Travel and Tourism Council, a global forum to raise awareness about the industry. If this trend continues as the Covid-19 crisis progresses, it will be a setback for national employment. The sector accounts for 12.75% of employment – 5.56% of it direct and 7.19% indirect. Over 87 million people were employed in the tourism industry in 2018-'19, according to the ministry of tourism

14.3 Key Policy Recommendations (Point-wise)

- *Cancel or postpone the proposed TCS on foreign travel that was introduced in the Finance Bill, 2020*

Union Budget 2020 proposed the introduction of a new kind of tax collection at source (TCS) that will be applicable on all remittances exceeding INR 7 lakh a year, under the RBI's liberalised remittance scheme. While the government has decreased the rate of TCS for education-related remittances to 0.5 per cent, from the earlier proposed 5 per cent and has deferred the TCS on foreign travel from April to June, they should either consider cancelling or postponing the TCS on the foreign travel too for a longer period. Since the rupee has also depreciated, the TCS will be an additional burden on customers.

- *One-year GST Relief*

A Goods and Services Tax (GST) relief should be made available for the new financial year 2020-21 for the travel sector.

- *Exclusive Fund Allocation for the Tourism Sector*

The government must come out with an adequate bailout package to revive the travel and tourism industry. The proceeds of this bailout should be utilized to save jobs and salaries of the people employed in the Industry and help pay for fixed costs borne by companies in the travel space.

- *Interest-free Credit Facilities for the Travel Sector*

The government authorities must ensure that there is adequate availability of collateral-free and interest-free credit for organizations in the travel, tourism and hospitality industries.

15. Impact on MSMEs

15.1 Sector Overview (Tabular Format)

Sector overview	
Sector contribution to GDP and Employment	<ul style="list-style-type: none"> • 30 – 35 per cent of GDP • 114 million people
Sector composition	Micro (~99 per cent), Small (0.52 per cent) and Medium (0.01 per cent) enterprises
Government spending	INR 75,722 million (2020 – 21)
Exports	USD 125 billion (2017 – 18)
Number of registered units	0.161 million registered units (as on 30 May 2019)
Sectoral distribution of MSMEs	Trade (36 per cent), Manufacturing (31 per cent), and Other services (33 per cent)
Distribution of MSMEs	Rural (49 per cent) and Urban (51 per cent)
States with highest number of registered MSMEs	Maharashtra, Uttar Pradesh, Bihar, Tamil Nadu, and Madhya Pradesh

(Table 12.1)

15.2 Current and Potential impact on the sector (Tabular Explanation)

Current and potential impact on the sector					
Parameter	Low	Med	High	Unknown	Comments
Price variations of key raw materials		✓			The domestic supplies and that from imports both will suffer and will have an impact both on availability and cost.
Production shutdown			✓		Will lead to a cascading impact even after the lockdown restrictions have been eased owing to global slowdown in demand
Cash flow constraints			✓		Will have impact on working capital needs during lock down, will also have an impact on supply chain, future investments and expansions
Supply chain disruption			✓		Impact on markets, relationships with downstream and upstream enterprises, pressure to look for newer markets etc.

Labour force			✓		Contractual, wage labour will get impacted more leading to layoffs, unrest, lowering of purchasing power
Consumer sentiment			✓		Negative sentiment and diminishing liquidity will impact most of the consumer goods industries, retail, service enterprises.

(Table 12.2)

- The impact will be high considering the fact that these MSMEs provide employment to more than **114 million people and contribute around 30-35 percent to the GDP.**
- The **MSMEs are affected at several levels**-with the national lockdown, the production facilities and retail has been hit big time. Micro enterprises specifically in the services sector are considerably impacted.
- A study by the All India Manufacturer's Organization (AIMO) estimates that about a **quarter of over 7.5 million MSMEs in India will face closure** if the lockdown due to COVID-19 goes beyond four weeks and this figure is estimated to touch a whopping 43 percent if the situation extends beyond eight weeks.
- MSMEs engaged in hotel industry, tourism sector and logistics have been witnessing a sharp drop in business for some time now. MSMEs engaged in essential services are still operational; however, it is unlikely to remain isolated from the slowdown owing to liquidity constraints, plunging general sentiments and purchasing capacity. Moreover, the impact on businesses is likely to have a cascading effect across the value chain.
- Consumer goods, garments, footwear, utensils, automotive segments will see a major direct impact. Sectors which are dependent on high imports (of raw material) such as electronics, consumer durables, pharma etc. are facing bottlenecks and so are the export-oriented sectors due to a major drop in demand globally.
- RBI's announcement of a three-month moratorium on repayment of term loans and a reduction in the rate will provide some relief.

15.3 Key Policy Recommendations (Tabular Information)

Key policy recommendations		
Recommendations	Short term	Medium to long term
Tax and compliances related	<ul style="list-style-type: none"> The date to deposit advance tax should be extended by six months All GST and other tax refunds should be credited to the businesses immediately to tide over the lack of fund availability with the enterprises. 	<ul style="list-style-type: none"> No fines/penalties should be levied owing to delays in filing of statutory returns i.e. GST, tax returns, social security such as EPF, ESIC etc. Demurrage and shipping charges should be waived off in view of delivery of all imports being allowed after cooling period of cargo for almost 14 days.
Easing financial stress in the sector	<ul style="list-style-type: none"> Exemption of MSME accounts from NPA classification (which was in force till 31.03.2020) to be extended till end of June 	<ul style="list-style-type: none"> Increasing the Open Cash Credit (OCC) Account limits for MSMEs by 20 per cent would have a positive impact on the liquidity available with the MSMEs. This limit could be reviewed on a monthly basis and revised as per the prevailing situation
Others	<ul style="list-style-type: none"> Inspections and physical audits by local bodies and regulatory institutions (such as pollution control board) with any non-compliance attracting fines and penalties 	<ul style="list-style-type: none"> Constitution of a task force to assess the actual impact on the sectors worst affected by the lockdown and suggest long term

	should be withheld till the epidemic is under control.	policy measures.
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(Table 12.3)

16. Impact on Pharmaceuticals

16.1 Sector Overview (Tabular Format)

Sector overview	
Market size	USD55 billion (2019 – 20)
Job creation	2.7 million (direct and indirect)
Pharmaceutical trade	Exports: USD13.7 billion (Apr 2019 – Jan 2020); Imports: USD1.99 billion (Apr 2019 – Jan 2020)
Key export destinations	U.S., U.K., Canada, Middle East
Global presence	Manages 50 per cent of global demand for generic drugs Supplies 80 per cent of drugs to fight AIDS
FDI equity inflows (per cent of total)	3.59 per cent (Apr 2000 – Dec 2019)

Market trends	Branded generics hold 70 – 80 per cent share of retail market; 3 rd largest market for APIs in the world; 4 th largest medical device market in Asia; 3000 pharma companies; 10,500 manufacturing facilities
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(Table 13.1)

16.2 Current and Potential Impact on the sector (Table Comparison)

Parameter	Low	Med	High	Unknown	Comments
Supply-side (electricity generation only, not considering manufacturing/construction value chain)					
Price variations of key raw materials		✓			Limited impact on coal prices. Changes in coal costs may pass through. However, solar module prices due to short supply may increase. This may affect bid based projections under construction.
Production shutdown	✓				Essential service, hence limited impact. Cost increase may be witnessed if sustained over a longer period.
Cash flow constraints			✓		Revenue collection may be impacted across categories.
Supply chain disruption	✓				Coal logistics may have limited impact, however supply chain will be affected.
Labour force	✓				NA
Imports (if					NA

applicable)					
Demand-side (electricity demand)					
Lockdown/restrictions impact	✓				Domestic consumption (currently at 25 per cent share) likely to increased. Sustained lockdown to adversely impact industrial, commercial and traction demand (50 per cent share)
Consumer sentiment		✓			
Exports (if applicable)				✓	NA

(Table 13.2)



(Figure 16)

16.3 Key policy recommendations (Tabular)

Key policy recommendations	
Aspect	Measures
Business continuity and customer services	<ul style="list-style-type: none"> • More awareness on scheduled/preventive outages to avoid panic • Suspension of non-essential processes-disconnections, maintenances hutdowns, etc. • Deferring billing cycle, temporarily connecting disconnected users • Priority support to hospitals, isolation centres and other sensitive services.
Safeguards and resilience	<ul style="list-style-type: none"> • Insulating critical operations (e.g. control room) and emergency response staff to ensure continuity of supply • Contingency measures and advanced training to manpower, management of demand volatility and large scale power outages among other occurrences.

Easing financial stress in the sector	<ul style="list-style-type: none"> • Stimulus packages/financial support for utility to continue service to customers (similar to those introduced in U.K., France, Canada and U.S.etc.) • Campaigns for revenue collection through digital means (where collection is possible) • Special schemes for management of arrears of marginal consumers in cases of non-payment increase • In case of prolonged lockdown-reducing delays in notification of revised tariffs by conducting public consultation and submission of comments online or announcing provisional tariff subject to further review at a later date.
Others	<ul style="list-style-type: none"> • Creation of a well-equipped emergency response team to include advanced trainings; and proactive maintenance of near failure equipment (incl. preparation of contingency plan in case of prolonged disruption) • Isolated control room operation and critical operation team • Postponing non-essential maintenance • Late fee waiver, support to consumers unable to pay bills • Increased awareness targeting utility employees and customers.

(Table 13.3)

17. Lockdown

A **lockdown** is an emergency protocol that usually prevents people or information from leaving an area. The protocol can usually only be initiated by someone in a position of authority. During the 2019–20 coronavirus pandemic, the term lockdown was used for actions related to mass quarantines. Lockdowns can limit movements or activities in a community while allowing most organizations to function normally, or limit movements or activities such that only organizations supplying basic needs and services can function normally.

17.1 Strategies for Lockdown Relaxation

17.1.1 Colour Zones for Coronavirus areas

- **RED ZONE:** The districts with substantial numbers of positive cases would fall under the red zone. The coronavirus red zone will see no activity.



(Figure 17)

- **ORANGE ZONE:** The areas with limited number of cases in the past and with no surge in positive cases recently would be included under the orange zone. Only restricted activities such as limited public transport and farm product harvesting is expected to be allowed in coronavirus.



(Figure 18)

- **GREEN ZONE:** The districts with no coronavirus positive cases would fall under the green zone.
- Agricultural activities are also likely to be allowed in green and orange zones with strict maintenance of social distance.



(Figure 19)

17.1.2 Principles of Exit Strategy

- To plan the exit to lock down with maximum safety to humanity.
- To continue to implement Social Distancing at all costs.
- To plan resumption of business to reduce impact to economy, keeping the point 1 as highest priority.
- To protect the vulnerable population which will increase the burden of health care cost, morbidity and mortality.
- Identify priority for resumption of normalcy.
- To identify Hotspots and ensure that such areas remain under restrictions of movement to and from.



(Figure 20)

- The government has, from this week, already relaxed restrictions in rural areas to let people harvest crops and work in a select group of industries with access controls and proper protocols.
- The idea is to expand the list of permitted activities in a way that does not lead to a free-for-all. The basic principle is to adopt a step-by-step approach under constant monitoring as the Modi government knows that India is in for a long haul.
- Enable full participation of states/districts and key stakeholders in decisions regarding a calibrated and staggered exit plan. An illustrative example is Kerala, which has constituted a state experts panel that has proposed an evaluation of districts by risk-assessment and a three-phase staggered plan. Rajasthan has also constituted a state-level committee.
- Even with calibrated opening, in some states/districts, there should be restrictions on large gatherings, public transport, opening of shopping malls, restaurants/hotels and educational institutions.

17.1.3 Conditions for exit strategy

A: No COVID Cases and no migration of workers	B: No COVID cases and there is migration of workers
<ul style="list-style-type: none"> ● Cordon of such areas. ● Allow all Sectors all services to operate. ● Allow all local procurement. ● Allow Transportation of Goods to Non COVID areas freely. ● All must use Aarogya Setu App. If travel to COVID Active areas, Re-entry only after testing / or allow Vehicle but use local drivers. ● Practice Social distancing. 	<ul style="list-style-type: none"> ● Cordon of such areas. ● Operate special transportation Bus, Rail to such areas can get on only post testing. In some cases, quarantine may be required. ● Allow all Sectors to operate. ● Allow all local procurement. ● Allow Transportation of Goods to Non COVID areas freely. ● All must use Aarogya Setu App. If travel to COVID Active areas, Re-entry only after testing / or allow Vehicle but use local drivers. ● Practice Social distancing.
C: No New Cases being reported	D: New Cases being reported
<ul style="list-style-type: none"> ● Cordon off areas where existing cases located. ● Extend local lock down of these areas for 7 days. ● Rapid Testing and in these areas allow only Essential Services and Export Sectors, continuous process, with testing of workforce, social 	<ul style="list-style-type: none"> ● Extend Lock Down for first 7 days and additional if required. ● All should use Aarogya Setu app if have phone. ● Rapid testing of all. ● Isolation of those testing positive. ● Quarantine those in proximity for 14 days.

distancing. • Rapid testing of all in the locality once no cases allow as A or B.	• Only Health Related and Essential Services including Agriculture or those units or sites where they have own worker housing.
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Table 14

18. Recommendations for “Normal” and proposed Exit Strategy

18.1 Tabular explanation of various categories

18.1.1 Common Citizens

Sr. No	Sector/ Stakeholders Affected	Recommendation (s)	Implementin g Agency	Proposed Exit Strategy
1.	Common Citizens	Lift lockdown selectively across the country, so that production, distribution, consumption, transportation, and other economic activities resume beginning with districts having no COVID 19 cases.	State Government	Remove

18.1.2
Workfo
rc
(Age
group
22-39
years)

Sr. No	Sector/ Stakeholders Affected	Recommendation (s)	Implementing Agency	Proposed Exit Strategy
2.	Workforce (Age Group in 22-39)	<p>The exit from the nation-wide lockdown could be done by permitting healthy persons in the age group 22 to 39 to resume work. This would be a low-risk group from a perspective of putting strain on medical and ICU facilities. This group of over 150 million people could put the wheels of economic activity into motion. Maximum oversight of their activities could be done by older persons through work from home.</p> <p>The working group would have to carry age proof and ensure that the right demographic come to work, and some level of quarantine infrastructure availability would be the responsibility of employers.</p>	State Government	Remove Lockdow n

(Table 15.2)

18.1.3 Health-care and Infrastructure and capacity

Sr. No	Sector/ Stakeholders Affected	Recommendation (s)	Implementing Agency	Proposed Exit Strategy
3.	Healthcare and Infrastructure and capacity	<p>Government to enable extensive and quick testing of people at work by ensuring test equipment availability at large factories / project sites / medical facilities or government hospitals in the vicinity of such work centres. Quarantine facilities with medical supervision, food and essentials to be set up in the vicinity of such work centres by Government or through Government aid. Sanitization booths can be set up at each work centre. Large number of masks and sanitizers should be available at all workplaces through Government support.</p> <ul style="list-style-type: none"> • Districts and cities should be stratified as High, Medium and Low risk through strict data collection, surveillance and assessment. • The risk assessment must consider understanding clinical course in the Indian context, viral shedding (both nasopharyngeal and stool—which is documented, and a particular concern in the south Asian context), pediatric illness in the context of malnourished children. 	Ministry of Health & Family Welfare, State Government (State Health Department, Emergency Services & State Police Force, Disaster Management) & Administration of respective organizations	N. A

(Table 15.3)

18.1.4 ECOMMERCE

Sr. No	Sector/ Stakeholders Affected	Recommendation (s)	Implementing Agency	Proposed Exit Strategy
4.	Ecommerce	<p>In exit strategy, eCommerce and all its value chain players to be enabled so that supplies are not stopped, and people can stay home</p> <ul style="list-style-type: none"> • Call out to eCommerce workers to encourage them to report to work, may be an announcement of insurance schemes for them • Ensure on ground eCommerce is enabled truly with MHA orders • Opening up of essential products list • Include supply chain players in opening up especially small-scale sellers supplying essential and select non-essential products. • Allow nonessentials stuck with prior lockdown orders to be delivered too to unclog the cloggers networks (trucks, warehouses etc.). Sectoral players can finish this delivery in 7 days allowing them to concentrate on next phase of products allowed. 	Central and State Governments, Local Administration, state police forces	Partially remove lockdown

(Table 15.4)

18.1.5 Agriculture/Labour

Sr. No	Sector/ Stakeholders Affected	Recommendation (s)	Implementing Agency	Proposed Exit Strategy
5.	Agriculture/Labour	<ul style="list-style-type: none"> Harvesting season is on and labour is not available. District collectors should be advised to ensure full harvesting and MNREGA workers should be used for harvesting. The inputs like seeds, fertilizers etc. are not available to the farmers and this is hampering the plantation of summer crops. Movement to mandis for selling crops is another issue. The entire Agri-value chain should be opened and facilitated otherwise it could lead to a very difficult situation for farmers and agriculture labour. Farmers should be encouraged to sell their produce through e-NAM directly without needing to take the produce physically to APMC centres 	State Government; Ministry of Agriculture; APMC	Remove Lockdown

(Table 15.5)

18.1.6 Hotels

Sr. No	Sector/ Stakeholders Affected	Recommendation (s)	Implementing Agency	Proposed Exit Strategy
6.	Hotels	Doctors and other support staff who are to be quarantined after treating patients as a mandatory practice, may be put in the hotels (instead of some guest houses etc.) at	Ministry of Health & Family Welfare / State Health Departments; Hospitality industry	Extend Lockdown

		Government's cost. This will allow them to access better facilities and will also give hotels some business reeling under tremendous downturn. In U.P., Delhi and Assam this has already started.		
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(Table 15.6)

19. Conclusion

We all are facing this pandemic with brave hearts and should continue to do so. As a coin has two sides, along with the global havoc it has created, this global pandemic had an incredible effect on our nature. It is said that the ozone layer which was depleting because of all the pollution has been recovering ever since the lockdown.

Industries are of crucial importance for any country's economic development. This pandemic had a great impact on the prospering industries and many of the companies' have incurred a loss during these times.

The above industries are the most affected from the mechanical sector, in general, and will have to follow certain steps to overcome the loss. In conclusion, we can say that, due to the above possible factors, the growth of the industries has decreased.

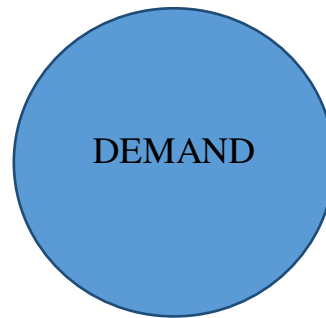
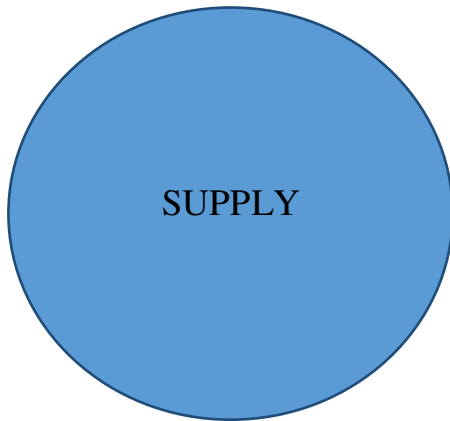
We know that the GDP growth of the Indian economy has declined from 8% to 0.6% during this lockdown, because of which the industrial sector has faced a steep decline in their areas of about 10-20% on an average. This includes production, employment, deployment and various sectors of the industries have been inferiorly on a decline.

If this situation prevails, the industries might be affected, even though not as much as the months of lockdown, but surely it will adversely affect our Indian economy.

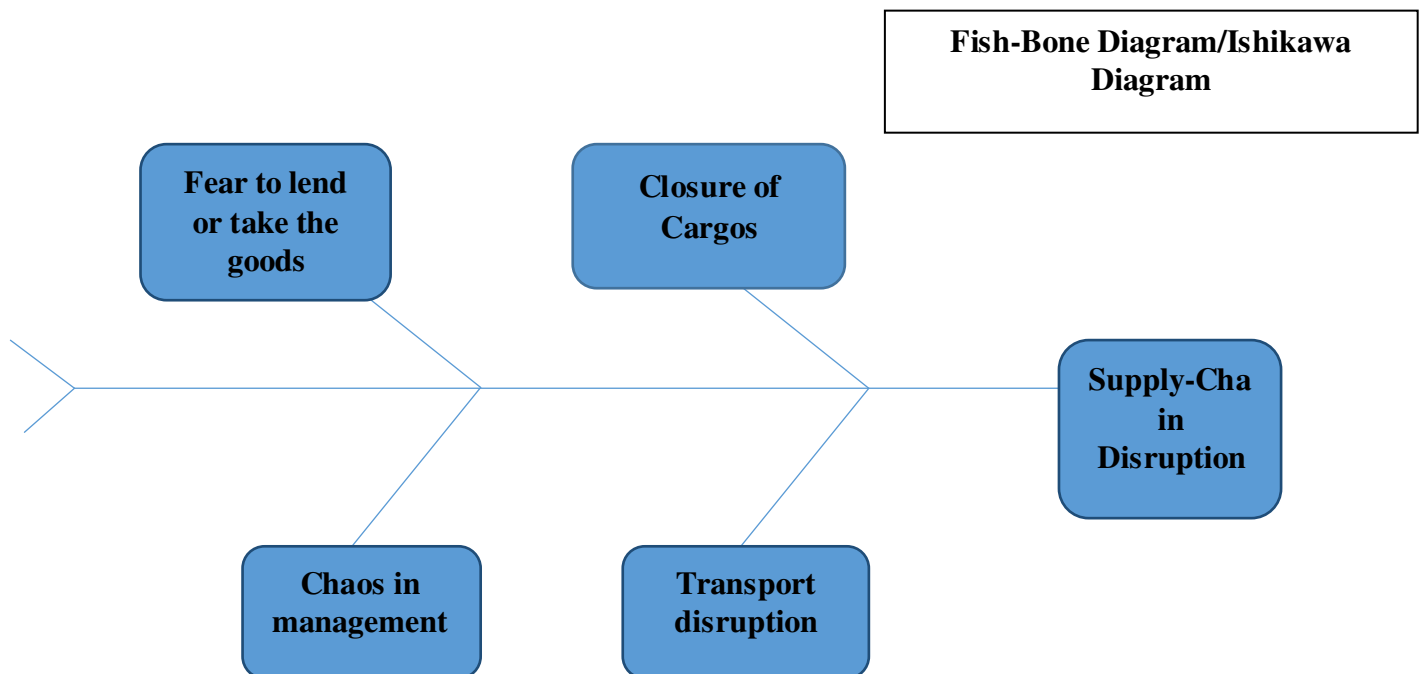
Moreover, in this pandemic, the unity shown by Indians to boycott the Chinese goods and industries will prove to be turning point for the better future of the small-scale industries on one hand as well as the local shops on the other. By continuing to do so, even after the pandemic, we can assure that the economic condition of our country will improve and much motivation will be given to the local businesses to flourish under the movement of **#ATMANIRBHAR BHARAT**.

The above report has proposed many a way to regrow the industries to their previous potential and helping the mankind with their technological power.

This Pandemic will not last forever so the industries will obviously come back to routine but the process will take time. The main reasons why the industrial economy is disrupted because of disruption in supply and demand chain.



As the flowchart shows our industries are making enough product but the demand has been reduced due to many circumstances.



(Figure 21)

This shows that the Industries having weak inventory control are having a bizarre effect because production is done at par but demand is decreased so for storage the inventory control should be powerful.

Fish-Bone diagram shown above is a TQM method to identify the effect of the cause. It was created by Kaoru Ishikawa and it is one of the best ways to identify causes and sub causes.



Kaoru Ishikawa

(Figure 22)

Stock	% Decline Since Feb 20, 2020	1-year fwd PE (Consensus)
PHARMA		
IPCA Labs	-6.70	21.80
Torrent Pharma	-15.80	25.90
Abbott	-16.80	37.50
Sanofi India	-14.40	26.70
Pfizer India	-11.40	28.30
DIAGNOSTICS/HOSPITALS		
Metropolis	-30.00	32.30
Thyrocare	-21.90	17.50
Narayana Hrudayalaya	-33.30	23.20
CONSUMER GOODS		
HUL	-15.60	47.10
Godrej Consumer	-29.40	24.60
Dabur	-20.90	37.20
Procter & Gamble	-20.30	46.90
Avenue Supermarts	-23.80	65.00
AGROCHEMICALS / FERTILISERS		
Coromandal Fertiliser	-20.10	13.70
Rallis India	-35.50	12.40
Bayer CropScience	-31.40	23.90
Dhanuka Agritech	-40.10	9.50
Kaveri Seed	-34.40	7.20
Chambal Fertilisers	-31.70	4.70
SPECIALITY CHEMICALS		
Galaxy Surfactants	-32.40	15.20
Vinati Organics	-30.30	18.60
Navin Fluorine	-10.70	22.80
THE ONES THAT MAY GET STRONGER		
Dr Lal Pathlabs	-23.40	33.60
Divi's Lab	-13.60	29.90
SIS India	-39.80	15.80

(Source: Economic

Times)

(Figure 23)

“This cut-out shows the impact of Covid-19 on the Industries.” Gradually some sectors have improved their growth. Best example is **ALOK INDUSTRIES**, **RELIANCE** has given them the contract to make PPE's so due to which there was an exponential growth was seen in the Industry.

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