

Review of Impact of Pandemic (Covid-19) on Infrastructure Project in PCMC -region

Neha Ritesh Kotarwar¹ Prof. Himanshu Ahire²,

Post Graduate Student¹, Asst. Prof.², Department of Civil Engineering, D.Y. Patil Institute of Engineering, Ambi, Talegaon Dabhade, Pune, India.



Abstract

In today's globalized world, there is hardly any place that has remained unaffected by the severity of the Novel Coronavirus or the Covid-19 pandemic. Almost every commercial activity is suffering at the hands of the ruthless Covid-19. Construction and Engineering sector, which was already reeling with multiple challenges from lack of capital and credit avenues to insolvencies, multiple frauds and regulatory burden under the Environment Laws and the Real Estate (Regulation and Development) Act, 2016, is now marred by the Covid-19 pandemic, with no likely relief in sight. Government of India has imposed a lockdown like many nations, restricting the movement of people and gatherings. In the construction sector, hordes of workmen toil together to meet the timelines. However, due to the restrictions put in place by the Government, all the construction activity and most of the business activity across the country has halted. This paper observes infrastructure project in Pune-PCMC region and describes the impact of the Corona virus on the construction industry. This paper also explains how it is possible to continue construction work in this situation. This will help our country to cope up with the financial crises and help to reduce the unemployment in our country.

Keywords: COVID-19, pandemic, corona virus, Impact, Construction, Infrastructure Project, Economy, Pune-PCMC-region.

1. Introduction

Construction is key to the global economy and it has been significantly affected by COVID-19 the COVID-19 pandemic has devastated the world of work. Its impact, which varies across sectors, has been significant in the construction sector. As construction is sensitive to economic cycles, construction enterprises and workers are particularly vulnerable to the drastic decline in economic activity resulting from the pandemic. Increased health risks associated with COVID-19 have exacerbated decent work deficits in the sector. Pandemic will reduce investment in **construction industry** by 13 to 30 percent, which will probably **affect** gross value added and employment. The number of unemployed in **India** has risen to 27.11% due to **Corona virus (COVID-19)** Before the pandemic, the construction sector accounted for around 7.7 per cent of global employment, with projections for 2020 indicating that it would contribute to 13.4 per cent of global GDP. In the context of the current crisis, however, falling revenue and increasing project delivery challenges have led to the sector's contraction in most markets, with a corresponding negative impact on the labor force. Corona virus is an infectious disease therefore to stop the spread of this disease, the construction work has been temporarily stopped keeping in mind the concerns of the workers in the construction industry. As a result, construction industries are gaining nothing but losses, which have an impact on world economy. It has also disrupted the transportation system which has disrupted the supply of materials. Many construction companies are going through a financial recession so companies are laying off a lot of their workers. Overall, construction industry has taken a terrible turn.

1.1 Problem Statement:

COvid-19 is the highly contagious disease and it is spreads world widely. In India to stop the spreading of corona virus in India, Indian government had imposed lockdown and due to lockdown whole construction industry is hampered and went under financial crises and it also causes various impact on construction sector, This paper has observed the impact of COVID-19 in the construction sector in infrastructure project in PCMC –region PUNE, India. In this paper we studied the impact of covid-19 and pandemic Situation on one ongoing infrastructure project “**Construction of grade separator on Dange chowk pimpri-chinchwad, Pune**” is observed and all the required details according to it are gathered.

1.2 Goal and Objective of the project

The goal of this thesis is to make a holistic approach to evaluate the impact of Covid-19 and Pandemic situation over a Infrastructure construction project progress and prediction of expected time at completion during the execution of the works by joining a wide range of understanding hazards later author will find out the techniques for improving the workability and profitability of construction industry in India.

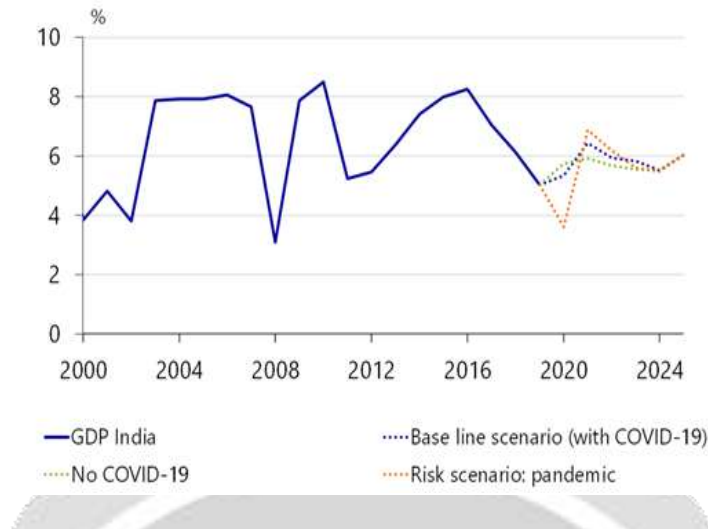
1. To workout the impact of covid-19 over construction industry.
2. To implement the project planning technique according to covid-19 pandemic as per government protocol provided.
3. To provide remedial measures over covid-19 pandemic situation that how to deal it and progress on project construction work.
4. To quantify the impacts of the Covid -19 related to project performance in terms of cost and schedule.
5. To Improves efficiency of work and to save cost and maximize profitability.

2. Methodology Adopted:-

This report presents a comprehensive structure for risk and human resource management especially related to Covid-19 pandemic situation how to deal with such situation and manage all the things without hampering the human life and by following the all government protocol laid. Manpower is a most important resource element in construction sector. In this report we use Resource Constrained Approach and Microsoft Project approach for project planning and management and try to cope up with the situation and find the better way for success with increase business profitability in Indian Construction Industry for Infrastructure project in our case study this research is carried out as beneath stages. Here we workout various Impact factor affecting on Infrastructure project due to Covid-19 Pandemic then we find out various remedial measures and how our proposed approach is better for Infrastructure projects in India.

3. The impact of COVID-19 on the GDP, construction sector and unemployment in India.

- GDP of India shrinks 23.9%
- The number of unemployed in India has risen to 27.11% due to Corona virus (COVID-19) in the first week
- The impact of the Corona virus on India's construction industry is costing estimated Rs 30,000crore every day. This pandemic will reduce investment in construction industry by 13 to 30 percent, which will probably affect gross value added and employment.



3. Impacts of COVID-19 on construction sector

As the covid-19 introduced in India it is very important to take necessary measure to stop spreading the novel corona virus into the country as our country is densely populated and we don't have plenty of medical services and equipment so government has put lockdown in India as it is the only solution. There are multiple consequences of the lockdown, which would further stretch the troubles for the sector like reverse migration, disruption of supply chains, amongst others. Cumulatively, the above circumstances would cause hindrance in meeting the obligations under the construction and engineering contracts and would lead to multiple legal wrangles for the industry post lifting of the current restrictions.

3.1 Supply chain management

Due to the lockdown effect The supply chain has been disrupted in various ways in different parts of the world as it is not allowed to cross any border of country and even states and cities, even no one have to allowed to come out from their houses. Various construction materials are required but for lockdown these are not reaching the construction site which is hampering the construction work. Sometimes some construction material has to bring from various country and any other states' and hence it cannot possible due to lockdown. Due to which the required materials are not arriving so the work is off. It has not only shut down the construction industry, it has also damaged the livelihoods of those who bring these things in vehicles and the factories that make all these materials are also losing a lot of money because these are not being sold.

3.2. Transportation problem

Due to lockdown all transportations in the country have been disrupted in all parts of the country. That's why no materials are arriving in the construction sector and no workers are able to come to work from their home. Hence it is not possible to continue the execution work and it stopped.

3.3. Labor shortage

This corona virus is highly contagious disease and proofed very dangerous to people when it is not treated timely and properly therefore, many workers are not willing to come to work site they are migrating from their work place to their hometown due to the fear of the disease, in execution work for labors have to coordinate to the many people and due to that there are huge chance of spreading this virus and also workers are unable to reach their workplaces because the transportation system is completely closed. it is not possible to make the workers work without any protection.

3.4. Financial problem

Labors are not available material are not reaching at site hence construction work is stopped. The companies are not making any kind of profit due to work stoppage in the companies and on the contrary more losses are being incurred and not only the company is losing money but also all the suppliers who are providing the required materials to different companies to be used in construction sector, all those suppliers are also incurring huge losses. Since the closure of the company, the supply chain has been shut down and the factories that produce goods have stopped production, resulting in many losses of them. Moreover, due to non-sale of factory-produced goods and closure of the construction sector, the government is unable to collect proper taxes from all these places which is having a direct impact on the country's GDP and when the country's GDP goes down, it affects the global economy.

3.5. Contractual implication problems

covid-19 is the literally an unexpected pandemic for construction industry and also for various industries due that government of India has decided to give more time to contractors that is six Months extensions for their project completion time without any penalties. It is based on a clause called 'Force majeure'. There are many rules mentioned in this clause, 'Large Scale Epidemic' is one of them. COVID-19 pandemic falls within this category. Different contractors put their different tools in different places for use in different machinery construction sector but as a result of this lockdown, all these equipment have been lying there for a long time. The companies have a contract with the contractors to work with all these equipment on the basis of some money and If the 'Force Majeure' Clause is mentioned in the contract then no compensation will be paid to the contractor by the agency due to delay. The result is a lot of financial loss when contractors stop working.

3.6 Unemployment

Companies are not able to make profit due to this lockdown and pandemic effects and they are suffering huge economic losses. That is why companies are not able to pay their employees timely and fully hence the company is laying off a lot of workers. Due to this, many people's jobs have been snatched away. Their families are also going through a lot of hardships as a result of losing their jobs. And this may increases the poverty in the country.



4. In our case Study:

The above mention effects of covid-19 we have experienced at our Infrastructure sites **Construction of grade separator on Dange chowk pimpri-chinchwad, Pune.** as it is common to all but in our study, we are focusing in infrastructure project. In case of construction of infrastructure project this project are mostly at very congested place

and sometimes at very remote places. In our case this project is on very congested place as it is Construction of grade separator.

To give a start to execution work in construction industry government implies very important protocol over all companies that company has to arrange all living arrangements for labors and also free food to their labor, good quality of drinking water and wash basin for continues washing of hands urinals, sanitizer, safety mask, gloves and all the necessary safety equipment to labors at their sites only. And they have to start their execution with less or optimum numbers of labor to avoid crowd and spreading of corona disease. Company has to arrange medical testing and inspecting of labor for their health in every 15 days that to be on company's expenses to ensure a corona free safe environment for labor. Hence it is not possible for company to arrange such arrangement at site only in case of construction of residential building it is possible to arrange all this things ay sites only but in our case it is located at very densely populated area n very running road there is no huge place to arrange all such things at sites.

5. Conclusion:

The COVID-19 pandemic has done a lot of damage to society. It has affected the society as well as the economy of every country. The disease is spreading so fast that the government has been forced to lockdown. As a result of this lockdown, all transportation systems have been shut down, supply chains have been disrupted and workers are not able to come to the construction site even from home. That's why work in the construction fields has stopped and the construction workers have also faced extreme uncertainty. So construction companies are facing a financial recession. Companies need to start working again to end this financial crisis. That's why everyone should return to work in according to the guidelines given by WHO and the government. Construction companies need to take necessary remedial measures for their workers. Companies should keep an eye on whether it's easy to work with new technology or software and try to do most of the work from home. Not only the construction sector but other organizations should be aware of this and continue to work so that the economy will improve and unemployment will be reduced

References:

- 1) The impact of COVID-19 in the construction sector and its remedial measures
Ankan Biswas¹ , Abhinandan Ghosh² , Adrish Kar³ , Tuhin Mondal⁴ , Bunttee Ghosh⁵ and Dr.Prasanta Kumar Bardhan⁶ 1Department of Civil Engineering, JIS College of Engineering, Kalyani, Nadia, West Bengal, India
- 2) Abhishek Waghmare. India GDP growth. 1st September 2020. Business Standard. https://www.business-standard.com/article/economy-policy/first-economic-contraction-in-4-decades-india-gdp-shrinks-23-9-in-q1fy21-120083101301_1.html
- 3) Construction placement. 3April 2020. <https://www.constructionplacements.com/top-constructioncompanies-in-india-2020/>
- 4) WIKIPEDIA Construction industry of India. https://en.m.wikipedia.org/wiki/Construction_industry_of_India
- 5) Jonathan Ananda. THE NEW INDIAN EXPRESS. 27th March 2020. <https://www.newindianexpress.com/business/2020/mar/27/15-crore-unregistered-constructionworkers-in-the-lurch-sans-relief-2122056.html>
- 6) MONEY CONTROL. 8 May 2020. <https://www.moneycontrol.com/news/real-estate2/coronavirus-construction-sector-facing-daily-loss-of-rs-30000-crore-investments-in-projectsto-fall-13-30-kpmg-5243761.html>
- 7) THE HINDU. 5 May 2020. <https://www.thehindu.com/business/indias-unemployment-raterises-to-2711-amid-covid-19-crisis-cmie/article31511006.ece>
- 8) The impact of COVID-19 in the construction sector and its remedial measures
<https://www.journals.com/physicstudies/bussiness/realestate/unemployemnt/artical17426596/1797/1/012054.ece>