

The Sustainability Aspects of the Construction Industry in Crisis (Pandemic)

Rupali Suresh Desai*, Er. Upendra R. Saharkar

Department of Civil Engineering, Savitribai Pune University, D. Y. Patil Institute of Engineering & Technology, Ambi, Pune, Maharashtra India.

*Corresponding author

doi: <https://doi.org/10.21467/proceedings.118.62>

ABSTRACT

Covid-19 has turned all living objects into an entirely unprecedented ways of living life with the right approach towards sustainability. This has made ample amount of changes in experiencing a life. In a professional environment, every industry has suffered in the wave of life threatening disease of Covid-19 which is well known by the name "Corona virus". Civil industry is one of them and perhaps the most affected industry where the physical presence of workforce is utmost important to execute the work. The work lagging has tremendously affect the economy that it almost stopped the development in Infrastructure development and hence economy. This study has come up with the thorough preparation by referring to multiple articles, live examples and from the voice of experienced individuals who felt the heat of the wave.

Keywords: Covid-19, Construction industry, Economy, Sustainability, Pandemic, Crisis, Lockdown, Quarantine.

1 Introduction

This study has developed with the interest of planning and designing the sustainable way of workings in CIVIL industry. In this process the views of different individuals of different designations have also been considered like Customer, Builder, Supplier, Labour etc. who belongs to the industry carrying their part of responsibilities. Construction industry is the workforce intensive industry and if workforce is unavailable then how to get things done with the planning and at the same time how to manage and maintain the company's balance sheet with positive figures is the most challenging aspect. Aspects of such types are identified here to address.

2 Aim & Objective of Paper

1. While addressing the concerns of civil industry in pandemic, the reference of literature reviews by using journals, political and business articles, general affairs, newspapers, press releases, verified social media handles, world economy forums, GDP aspects, Local standards are highly considered.
2. All considerations have been utilized for the single objective of sustainability planning in construction industry. The aspects are in a view of current and post pandemic conditions. Most of workings are based on assumptions and pre-deterministic solutions but in a concrete manner.

3 Methodology

Multiple processes, procedures and even methodologies have been considered here to refer like the feedback on questionnaire from multiple people handling multiple responsibilities in the industry, This even includes the physical visit to government as well private commercial and residential sites. The words from Investors and brokers have also been mapped to the matter. This makes the study more healthier as it puts the financial views which is the most crucial view during pandemic.



4 Literature Review

As per the author Fredrick Simpeh and Christopher Amoah This study showcase the precautionary and preventable measures conducted by the large organizations to enables their workforce to come to the work and continue to contribute to the desired outcome. However, what precautions have been undergo needs to be scrutinized in favour of health of the workforce e.g. checking of body temperature, sanitizers, cleanness of common washrooms etc. and subsequent actions in case of any devastating conditions like rapid spread of infections or emergency medical aid.

As per the author Ankan Biswas, Abhinandan Ghosh, at.el. has covered lockdown effects and its remedial measures. Because of lockdown all transportation systems have been shut down as a result of the lockdown, supply chains have been disrupted, and workers are unable to come to the construction site even from home. As a result, construction work has ceased, and construction workers have faced extreme uncertainty. As a result, the construction industry is experiencing a financial downturn. They Suggest some Remedial measures to revive the construction sector against this disease:- Comply with the guidelines of the WHO and the government.

As per the author Ihsan Ali Husien, Zelentsov Borisovich, and Ahmed Adel Naji, this paper is in attempt to highlight the most prominent impact of this pandemic on the construction and other dependent industries across globe. The other aspect of this paper is to highlight the strategies which can be implemented in view of mitigating the damages and losses incurred in pandemic. The strategies could be at any levels but the most significant would be at the country's authoritative level.

As per the author Linzi Zheng, Ke Chen, and Ling Ma This study is based on the KAP (Knowledge, Attitude and Practice) survey towards covid-19 impact. Many construction sites were suspended as a precautionary measure to stop the spread of covid-19 infections. This has even included all non-essential services with the negative reflection on public transport as well to limit the crowd. This challenging situation has triggered the disciplined approach to live a life by following certain measures such as distancing, minimum physical presence in social life, no public gathering etc.

As per the author Shelly Stiles, David Golightly, Brendan Ryan, this study is presented in view of human health and safety measures to safeguard the prevalent infections of pandemic and the subsequent injuries in a construction environment. This is in consideration of current and post-pandemic repercussions and emphasizes more on terminology called "RISK management". All associated risks have to be assessed to implement the necessary countermeasures, one of the countermeasures is to train people on general safety, hygiene and distancing etc. Organizations should conduct online training or on-premises training where all workforce can be educated and adhere to follow the guidance. The financial crunches in an industry should not become a burden to have such basic countermeasures in place.

As per the author LIN Ben-xi1, Yu Yvette ZHANG This elaborates the mixed reactions of pandemic over agricultural business. There is positive as well as negative impacts in theory of demand and supply i.e., decline in export but implied an increase in grain and oil etc. The Covid-19 impact also showcased how small agricultural businesses are struggling to sustain and failing to have survival strategies, this makes them vulnerable as compared to the larger business in the same sector. This triggers the government's intervention to support small businesses and to come up with policies with the intention of re-energizing the economy.

As per the author Mansour Abd Elrhim, Abdullah Elsayed This paper verifies the effects of Covid-19 on the e-commerce industry. To do this, the world's five large e-commerce giant companies have considered which are large in revenue and market value. The valuation of any E-commerce company is so far always been calculated in monetary terms based on the value they generate in the daily traded stock market.

However, this study specifies the effects on the “Global e-commerce market”. This consists: 1) The global e-commerce market hit by the covid-19 and the independent variables which were the most critical and influencing the returns of the shares of global e-commerce companies. 2) The variable “total deaths” was the degree of impact in the first rank. 3) The variable “total cases” was at the second rank and “new cases” in the third rank. However, the percentage of spread effectively varies from company to company considering in which country/states it is functional.

As per the author Nimesh Ulak This study focuses on showcasing the different facets of the impact of novel corona virus disease in tourism industry. This spillover adverse impact has been experienced in almost every sector globally. The researchers in coordination with governance authorities have already started working in the interest of combating the circumstances. The United Nation World Tourism Organization (UNWTO) and World Health Organization (WHO) are one of the examples of the same. There are massive uncountable job losses recorded due to lockdown condition which each country’s government had imposed to limit the spread of covid-19 infections. This badly impacted Airlines, Hotel bookings, Hospitality industry, business travels, Overseas events etc. This is known fact now that due to the fear of spreading virus tourists will remain reluctant to travel and hence tourism will remain at its low level for next few years. However, we cannot deny the fact that we had many incidences in past which badly impacted tourism industry but it rejuvenated strongly and the same is expected with the current pandemic crisis as well.

5 Questionnaire Feedback and Analysis

I hereby publish and portray my collection of information which I have gathered from the survey. These questions or queries were designed in context of getting sense of people’s sufferings and complications. The results and analysis are illustrated as under:

5.1 Builder point of view

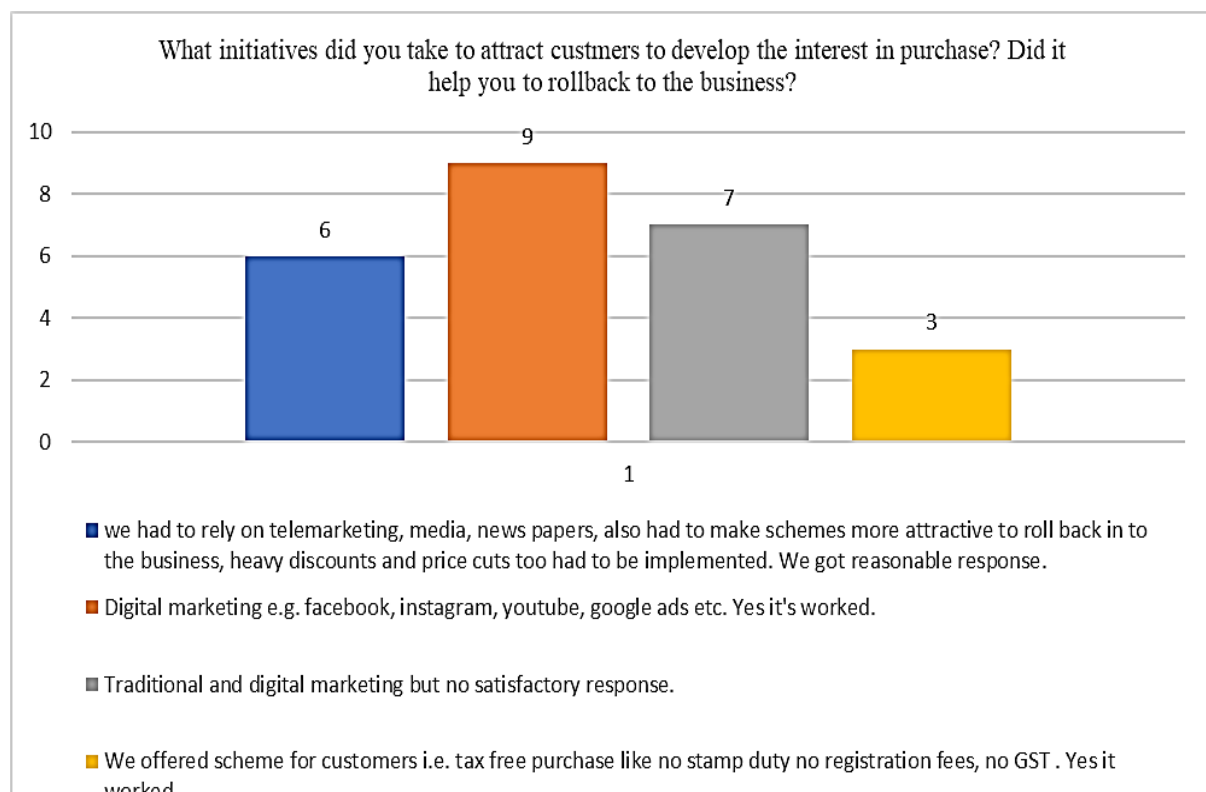


Fig 1 Builder point of view

Observation:

Digital marketing is the ultimate way of reaching people and precisely potential customers in a quick manner to a large numbers. Hence, making people aware of inventory becomes easy and informative. The reasonable offerings and flexibilities like subvention scheme attracted buyers in current volatile economic condition.

Impact:

The basic necessity like buying residential flat is always been in demand but buying property as an investment has gone down to its lowest due to covid-19 impact. Subsequently, the demand of luxury flat reduced as compared to the economic flats.

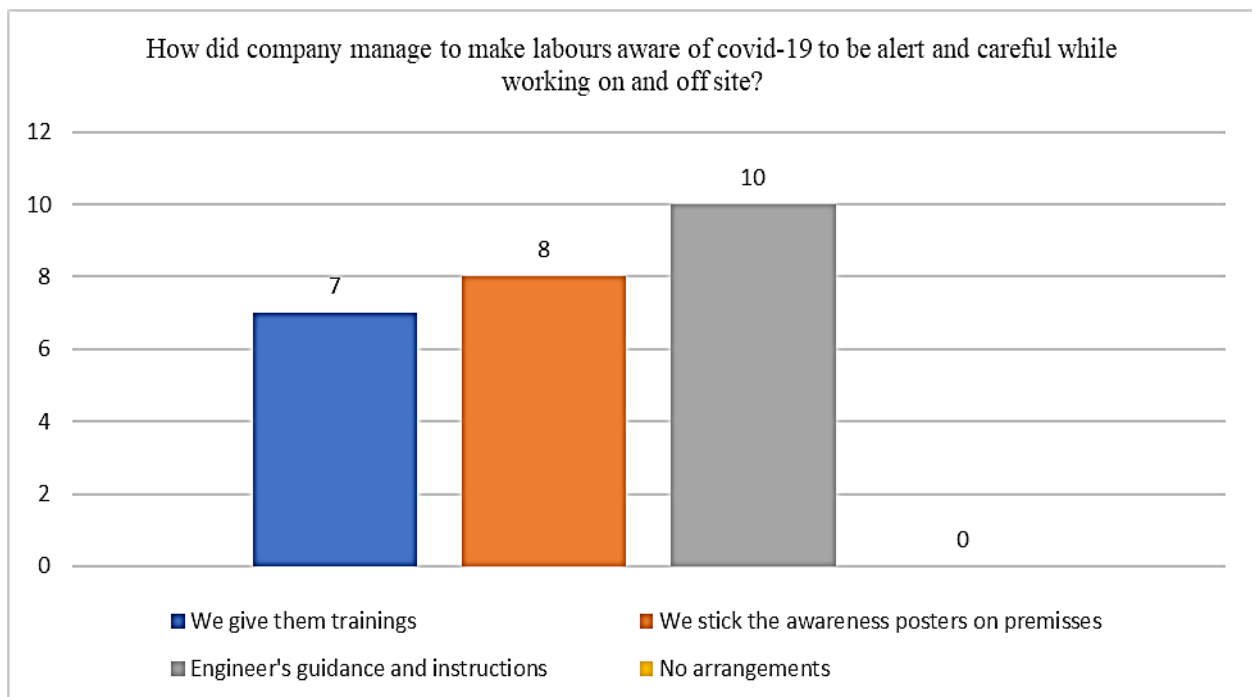
5.2 Labour point of view

Fig 2 Labour point of view

Observation:

Labours are strict in following rules due to life threatening covid-10 virus. However, educating them in a language which they can understand in very simplistic ways has been the key element.

Impact:

The fear of losing job and to lose daily wages has been a biggest worry among all labours. The loss of job can completely collapse their routine life. Hence, majority of labours preferred to stay with our employer unless they have been asked to leave or forced to leave due to non-payment.

5.3 Supplier point of view

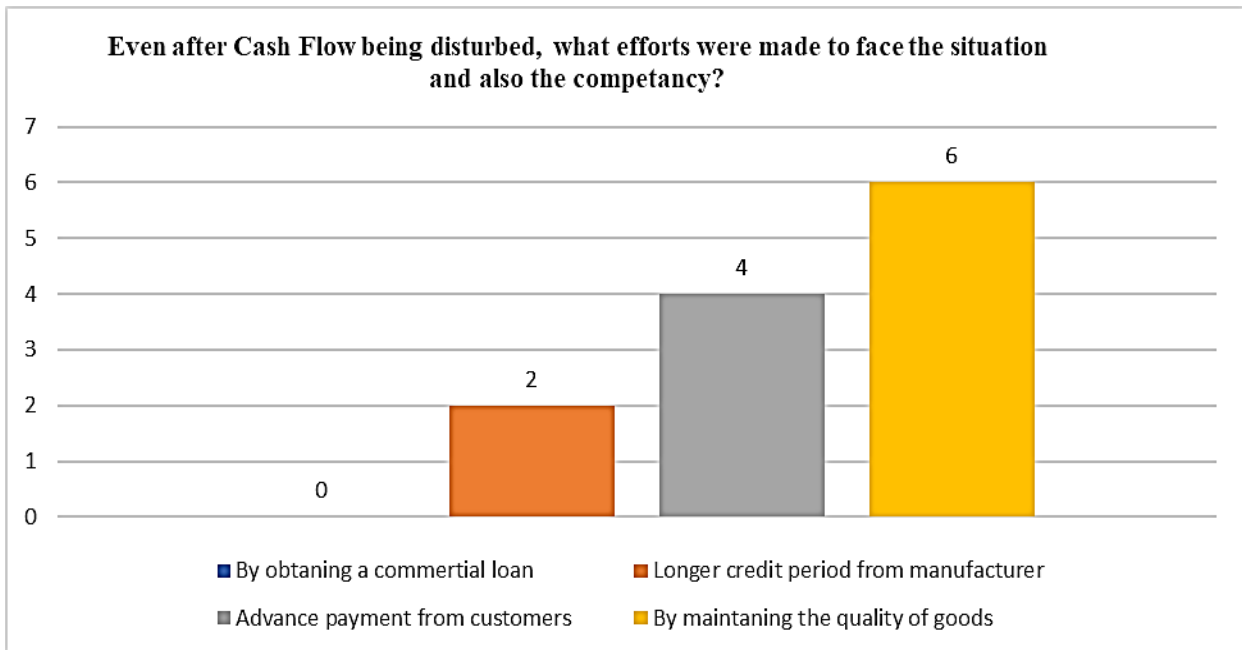


Fig 3 Supplier point of view

Observation:

Cash crunch has been the ultimate reason for all activities to stop or delay in process during pandemic. The rolling of monetary activities got disturbed. Hence most of activities worked on CREDIT basis with substantial increase in backlog.

Impact:

The government had to intervene in order to address the situation and to find the sustainable way out. The impact was so high that government had to instruct all the banks to provide the flexibility to the consumer by relaxing their EMI.

5.4 Customer point of view

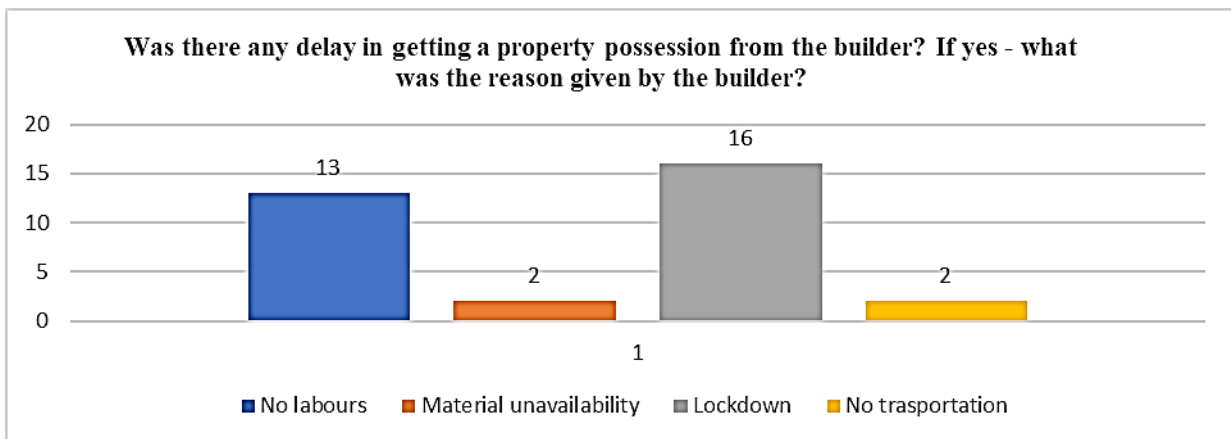


Fig 4 Customer point of view

Observation:

The covid-19 has become the reason of delay in possession for all construction projects. However, after initial covid-19 lockdown period majority of work had begun for known builders/companies but others were still struggling to get back to the work with full workforce. This delays the entire chain of competing the work and delay in delivering things in time.

Impact:

Due to delay in possession, people had to spend more money to their existing living area, commercial properties, no maintenance activities, Delay for international businesses to acquire the land to built up the area for their functional activities.

6 Remedies

- Keep the Financials secured with advanced planning. This consists the relations and business connections with the Investors and Financers.
- The use of Precast elements should be used.
- The new technology of shuttering material should be highly considered for the simple fact that it saves on time. Although commercially it is slightly on a higher side as compared to the traditional way of shuttering it completes the work without a major intervention of human efforts as compared to the labour intensive traditional shuttering.
- Keep the buyers alive by giving them a sense of security on investment or spending in real estate.
- The people from construction industry such as builder lobby, private infrastructure developer's community should come together to appeal state and central government to offer subsidy, wherever possible to boost the industry and to regain the trust of buyers.

7 Conclusions

The overall study and the remedy is expected to be effective, as I thought so because, it is purely based on pre-deterministic approach. However, it gives you the sense of preparations and planning for not becoming the victim of any crisis and disastrous conditions. The Construction industry has large potentials to grow by its nature as it shares the larger aspects of economy. Subsequently, this has direct impact on routine life of many where majority of populations belong to the economically backward and lower middle class category.

References

- [1] Fredrick Simpeh & Christopher Amoah, "Assessment of measures instituted to curb the spread of COVID-19 on construction site" INTERNATIONAL JOURNAL OF CONSTRUCTION MANAGEMENT, <https://doi.org/10.1080/15623599.2021.1874678>
- [2] Ankan Biswas, Abhinandan Ghosh et.al, "The impact of COVID-19 in the construction sector and its remedial measures", Journal of Physics: Conference Series, 1797 (2021) 012054.
- [3] Ihsan Ali Husien, Zelentsov Borisovich, and Ahmed Adel Naji, "COVID-19: Key global impacts on the construction industry and proposed coping strategies", Wasit University, Civil Eng. Department, Wasit, Iraq, E3S Web of Conferences 263, 05056 (2021).
- [4] Shelly Stiles, David Golightly and Brendan Ryan, "Impact of COVID-19 on health and safety in the construction sector", Hum. Factors Man. 2021;31:425-437.
- [5] Linzi Zheng, Ke Chen, and Ling Ma, "Knowledge, Attitudes, and Practices Toward COVID-19 Among Construction Industry Practitioners in China", BRIEF RESEARCH REPORT, published: 08 January 2021 doi: 10.3389/fpubh.2020.599769
- [6] Mansour Abd Elrhim, Abdullah Elsayed, "The Effect of COVID-19 Spread on the e-commerce market: The case of the 5 largest e-commerce companies in the world", <https://ssrn.com/abstract=3621166>
- [7] Nimesh Ulak, "A Preliminary Study of Novel Coronavirus Disease (COVID-19) Outbreak: A Pandemic Leading Crisis in Tourism Industry of Nepal", AITM School of Hotel Management, Knowledge Village, Khumaltar, Lalitpur, Nepal ISSN 2467-9550
- [8] Dr.Yaser Gamil and Abdulsalam Alhagar "The Impact of Pandemic Crisis on the Survival of Construction Industry: A Case of COVID-19", Mediterranean Journal of Social Sciences, <https://doi.org/10.36941/mjss-2020-0047>
- [9] Abdullah Alsharaf, Siddharth Banerjee et.al "Early Impacts of the COVID-19 Pandemic on the United States Construction Industry", Int. J. Environ. Res. Public Health 2021, 18, 1559.
- [10] Tariq Al Amri1, Manuel Marey-Pérez "Impact of Covid-19 on Oman's Construction Industry", Santiago de Compostela University, Technium Social Sciences Journal, Vol. 9, 661-670.
- [11] Mr Mark Stride, Dr Subashini Suresh, and Dr Suresh Renukappa, "The impact of Covid-19 on the UK construction industry", (University of Wolverhampton) (COV0118).

- [12] Alina Ilinova , Diana Dmitrieva and Andrzej Kraslawski, “ Influence of COVID-19 pandemic on fertilizer companies: The role of competitive advantages”, <https://doi.org/10.1016/j.resourpol.2021.102019>, Received 21 October 2020; Received in revised form 5 February 2021; Accepted 5 February 2, Available online 18 February 2021.
- [13] Muzaffar Iqbal, Naveed Ahmad at.el, “Covid-19 pandemic and construction industry: impacts, emerging construction safety practices, and proposed crisis management framework”, *Brazilian Journal of Operations & Production management*, Vol.18, No.2, e20211157,2021.
- [14] Mercy Ogunnusi, Mansur Hamma-adama at.el “COVID-19 Pandemic: The Effects and Prospects in the Construction Industry”,*Scott Sutherland School of Architecture and Built Environment, Robert Gordon University, Aberdeen, United Kingdom, Ogunnusi et al. International Journal of Real Estate Studies 14:S2 (2020), 120-128*
- [15] Mengyao Fu and Huayu Shen, “ COVID-19 and Corporate Performance in the Energy Industry”,*North China Electric Power University, China, Energy RESEARCH LETTERS, 1(1). <https://doi.org/10.46557/001c.12967>.*
- [16] Isabel-Maria Garcia-Sanchez and Alejandra Garcia-Sanchez, “Corporate Social Responsibility during COVID-19 Pandemic”, *J. Open Innov. Technol. Mark. Complex. 2020, 6, 126.*
- [17] Dr. Khair Al-Deen Bsusu“ The Impact of COVID-19 Pandemic on Jordanian Civil Engineers and Construction Industry”,*ISSN 0974-3154, Vol.13, No.5 (2020), pp. 828-830.*
- [18] George Denny-Smith, Riza Yosia Sunindijo at.el, “How Construction Employment Can Create Social Value and Assist Recovery from COVID-19”,*Sustainability 2021, 13, 988.*
- [19] <https://www.facebook.com/CMOMaharashtra>.
- [20] World Health Organization, <https://www.who.int/covid-19/information>.
- [21] Times of India, <https://timesofindia.indiatimes.com>.