



Impact of Covid-19 Pandemic on Institution Projects Delivery in Federal Polytechnic Ede, Osun State

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Abstract: This study examines the impact of the covid-19 pandemic, on institutional project delivery, a case study of Federal Polytechnic, Ede. The study used a descriptive research design to collect information from respondents. The population for the study were professionals in the Building industry that were available for the ongoing projects at the South campus of Federal Polytechnic, Ede. The instrument used for data collection was a structured questionnaire in form of a four Likert scale. The result from the analysis revealed that movement restriction, Government regulation on the number of people gathering on-site, fluctuation in the price of Building materials, lack of effective communication among the parties involved in the construction project affect the timely delivery of the project during the covid-19 lockdown. Lay down protocols like socio distancing, restriction of movement, washing of hands, wearing of face mask, hinder the effective operation of work on-site during covid 19. The effects of covid-19 on construction work on-site are; Increase in the final cost of the project, time overrun, reduced profit, abandonment of the Building project. The study recommends that there should be proper communication and coordination, payment should be made on time to workers, and workers should be orientated on new techniques that will be practised on-site due to the pandemic. The aforementioned points are the possible solution to the effect of the covid-19 pandemic on project delivery.

Keywords: COVID-19, Institution, Professionals, Pandemic, Effects

1 INTRODUCTION

A pandemic is an epidemic of an infectious disease that has spread across a large region, for instance, multiple continents or worldwide, affecting a substantial number of people. A pandemic is an epidemic occurring on a scale that crosses international boundaries, usually affecting people on a worldwide scale. According to Elnaggar, *et al.* (2020), the novel human coronavirus disease COVID-19 has become the fifth documented pandemic since the 1918 flu pandemic. It was first reported in Wuhan, China, and subsequently spread worldwide. The coronavirus is highly contagious; it rapidly spreads and continuously evolves in the human population. This pandemic affected not only human health but also the operational health of businesses and organizations, the construction industry inclusive. Professional bodies such as CIOB, RICS and the likes in an attempt to preserve construction businesses are rolling out strategies to enable smooth sailing and transition into the new dispensation (Ogunnusi *et al.*, 2020)

The global spread of the COVID-19 pandemic generates unprecedented delays, disruptions and uncertainty on construction projects. Travel restrictions, social distancing and quarantines increasingly disrupt supply chains, contractor workforces and the availability of governmental personnel for project inspections, resulting in delays and increased costs. COVID-19 pandemic is not only a global pandemic and public health crisis; it affects the global economy and financial markets, significant reductions in income, a rise in unemployment, and disruptions in the transportation, service, manufacturing and construction industries (Dey & Loewenstein, 2020). The construction industry in Nigeria is faced with a lot of problems, among which is a delay in project execution. Delays are insidious often resulting in time overrun, cost overrun, disputes, litigation, and complete abandonment of projects(Sambasivan and Soon (2007). Many projects are of such a nature that the client will suffer hardship, expense, or loss of revenue if the work is delayed beyond the time specified in the contract (Clough, 2016). It has been researched, that delay is a major setback in the construction industry.

Delay can be defined as an event that causes extended time to complete all or part of a project. Delay may also be defined as the time overrun, either beyond the date for completion specified by the contractor beyond the extended contract period where an extension of time has been granted. The type of delay we focus on in this study is the time overrun beyond the date for completion specified by the contract not considering whether an

extension of time has been granted. Parties to construction projects are suddenly facing the prospect of significant delays and disruptions from the threat posed by COVID-19. While prior disruptive events involved singular impacts, the COVID-19 crisis involves interruption to supply chains, labour supplies and emerging financial impacts. Delays are a major challenge faced in construction projects and current studies are looking into ways to manage them. Many factors cause delays in the construction project, some falling within the owner's liability and some within the contractor's liability (Thamer, 2020).

Delay in construction is a global phenomenon (Sambasivan and Soon, 2017) affecting not only the construction industry but the overall economy of countries as well (Faradi and Elsayegh, (2016). Delay involves multiple complex issues all of which are invariable of critical importance to the parties to the construction contract. Construction delays are caused by several factors. Ahmed (2013) grouped delays into two categories – internal causes and external causes. Internal causes arise from the parties to the contract (e.g. contractor, client, and consultant). External causes, on the other hand, arise from events beyond the control of the parties. These include the act of God, government action, and material suppliers.

COVID-19's impact on construction projects is mixed and varies by state. Many states consider construction an "essential" service, following guidance from the Federal Department of Homeland Security, which issued a non-binding list of 16 "critical infrastructure sectors." Other states and some local municipalities take a narrower view, requiring virtually all construction to cease. New York initially exempted most construction from state-mandated restrictions, but as of March 27, 2020, narrowed the definition of "essential" to shut down all projects other than the construction of roads, bridges, transit facilities, utilities, hospitals or health care facilities, affordable housing and homeless shelters, and allowing necessary work to safely secure and shut-down construction sites. In New York, determinations as to "essential" projects have been delegated to the Empire State Development Corporation and a process has been established for seeking this classification, which will provide further guidance on the boundaries of the current restrictions.

Pennsylvania's mandate to close all "non-life sustaining businesses" effectively stops all construction, with exemptions available to construction supporting health care providers and for emergency repairs. Boston, Cambridge and other Massachusetts cities halted all construction, but the Governor overrode the local orders and deemed all construction "essential," allowing all projects to continue provided workers follow social distancing, washing of hands and other corona protocols. Later, the Governor modified that stance, designating the construction of office buildings, retail and hotels as non-essential. In all cases, there may be evolving developments that may further define or change the restrictions and permitted exceptions

Furthermore, Bailey *et al.* (2020) highlighted the impact of the COVID-19 pandemic and how it is being managed. This pandemic is having a substantial effect on construction projects; however, the legal implication varies from contract to contract, nation to nations. Although, the pandemic was not rendering projects incomplete, but was slowing processes causing disruption and delay. Some of the projects have stopped completely to commence work at a later date. Health and safety risk assessments need to be considered to be consistent with scientific, medical and government guidelines; for instance, people working in an enclosed environment are at higher risk than people working outside. COVID-19 being an unforeseeable circumstance can be considered to be a force majeure occurrence. Force majeure under any standard form of contract, be it FIDIC, will usually afford contract extension of time for the delay during the pandemic and not compensation for cost.

Hook (2020) also declared that the impact of this pandemic might force some of the Engineering and Construction companies to streamline debt, consider means of funding or risk bankruptcy. Looking ahead, Engineering and Construction companies will encounter a new dispensation which will include a change in the marketplace, investment in infrastructure by some of the "national government" to kick-start their recovery.

Minimizing the spread of COVID-19 has become a top priority for all participants in Construction projects. Owners are recommended to take steps (or at least make sure that their contractors are taking steps) that represent local best practices including Use of cleaning chemicals pre-approved by local agencies for cleaning frequently touched surfaces such as tools, handles and machines, screening of all visitors and employees for signs and symptoms of COVID-19, Performing temperature checks and pre-access Job site questionnaires, establishing protocols to manage employees displaying symptoms of illness in the workplace and keeping the premises well ventilated and instructing employee who travelled to high-risk areas to quarantine for an appropriate period

Coronavirus Pandemic named COVID-19 has disrupted the world economy and is spreading globally. The evolution of the disease and its impact on the Construction industry is highly uncertain. In Nigeria, it was observed that the performance of the construction industry in terms of timely delivery of projects was poor in which covid-19 pandemic contribute immensely to it. For this reason, the impact of a covid-19 pandemic on institutional project delivery was investigated by exploring the opportunity of ongoing projects within the south campus of the Federal Polytechnic Ede.

2 RESEARCH METHODOLOGY

2.1 Introduction

The research method is mainly concerned with the procedure for data collection. It therefore highlights the research design, population of the study, sample and sampling techniques, research instruments for data collection, method of data collection and method of data analysis. This research aims to study the impact of covid-19 pandemic on ongoing project at Federal Polytechnic Ede, a case study of construction sites at south campus. This was achieved with literature review and a field study with the collection of primary data using questionnaire from construction professionals. Verbal interview relevant to the study, was done alongside with the questionnaire

2.2 Research design

Research design refers to the structure of an enquiry. The study used descriptive research design. Descriptive research design is used when collecting information about people's attitude, habit or any other variety of education or social issues and the design reports the way things are at present.

2.3 Population and research instruments

The population of this study covers professionals in building industry that were available for the ongoing projects at South campus of Federal Polytechnic Ede and they include project Contractors, Builders, Architect, Surveyor, Sub-contractor, Structural Engineer, Civil Engineer, Electrical Engineer, Mechanical Engineer etc. Sample size used for this study was sixty (60) respondents. The sampling Instrument for the study was a structured questionnaire. The questionnaire was divided into two sections A and B. Section A deals with personal data while section B contains the question items for the respondents. The first section collected demographic information about the age, gender, occupation, and level of education of the respondents. The second section focused on the impact of covid-19 pandemics on institutional project delivery. These questionnaires were hand-delivered to the respondents and the drop and wait method of administration was used. The four points Likert scale responses option used for eliciting response to the questionnaire are as follows: Strongly agreed (4) Agreed (3) Strongly disagreed (2) Disagreed (1).

The respondents were required to tick (√) any of the options they deem most suitable for the study.

3 RESULTS AND DISCUSSION

Table 3.1: Factors affecting timely delivery of Projects during COVID-19 lock-down

| S/N | Timely delivery | SA | A | SD | D | N | Mean | Decision |
|-----|---|----|----|----|----|----|------|----------|
| 1. | Movement Restrictions | 42 | 8 | 0 | 0 | 50 | 3.87 | Accepted |
| 2. | Government regulation on number of people gathering at site | 35 | 12 | 1 | 2 | 50 | 3.60 | Accepted |
| 3. | Fluctuation in prices of building materials due to 19 lockdown | 15 | 6 | 10 | 10 | 50 | 2.86 | Accepted |
| 4. | Lack of fund to finance the project to completion | 4 | 10 | 20 | 16 | 50 | 2.04 | Rejected |
| 5. | Equipment availability and failure | 10 | 9 | 16 | 15 | 50 | 2.28 | Rejected |
| 6. | Mistake and discrepancies in contract document. | 3 | 15 | 15 | 17 | 50 | 2.08 | Rejected |
| 7. | Bad weather | 4 | 15 | 12 | 19 | 50 | 2.08 | Rejected |
| 8. | Lack of adequate information | 11 | 8 | 13 | 18 | 50 | 2.24 | Rejected |
| 9. | From consultants Project management problem | 8 | 8 | 16 | 18 | 50 | 2.12 | Rejected |
| 10. | Inappropriate overall organizational Structure linking to the project | 14 | 14 | 15 | 7 | 50 | 2.70 | Accepted |
| 11. | Contractor's insolvency | 16 | 12 | 16 | 6 | 50 | 2.76 | Accepted |
| 12. | Lack of effective communication among the parties involved | 16 | 10 | 14 | 10 | 50 | 2.64 | Accepted |

Table 3.1 shows that movement restriction is the major factor that affect timely delivery of project during covid-19 breakdown, followed by government regulation on number of people gathering at site and Fluctuation in prices of building Materials due to lockdown. All this factors has significant effect on timely delivery of project, during covid-19 lockdown

Table 3.2: Impact of Covid-19 lockdown protocols to labour workforce on site

| S/N | Covid-19 pandemic protocol | SA | A | SD | D | N | Mean | Decision |
|-----|--|----|----|----|---|----|------|----------|
| 1. | Socio distancing should be practice on site | 27 | 23 | 0 | 0 | 50 | 3.54 | Accepted |
| 2. | Restriction of movement during covid-19 pandemic has contribute to project delivery | 33 | 17 | 0 | 0 | 50 | 3.66 | Accepted |
| 3. | Washing of hands | 32 | 16 | 1 | 1 | 50 | 3.58 | Accepted |
| 4. | Wearing of face mask | 34 | 5 | 5 | 6 | 50 | 3.34 | Accepted |
| 5. | Contractors should employ health workers | 21 | 21 | 2 | 6 | 50 | 3.10 | Accepted |
| 6. | They should report any health issue to NCDC | 41 | 9 | 0 | 0 | 50 | 3.82 | Accepted |
| 7. | During the quarantine period, labours working on on-going building project perform effectively | 0 | 1 | 42 | 7 | 50 | 1.88 | Rejected |

Table 3.2 shows that reporting any symptoms of Covid-19 to NCDC, in order to curb the spread, ranked highest, followed by movement restriction, washing of hands, social distancing, wearing of face mask and employment of health workers ranked the least.

Table 3.3: Changes in the Perception of Contractors resulting from covid-19 Pandemic

| S/N | Effects of covid-19 pandemic on on-going building project | SA | A | SD | D | N | Mean | Decision |
|-----|---|----|----|----|----|----|------|----------|
| 1. | Time overrun | 40 | 10 | 0 | 0 | 50 | 3.80 | Accepted |
| 2. | Increase in final cost of project | 48 | 2 | 0 | 0 | 50 | 3.82 | Accepted |
| 3. | Tying down of client capital due to non-completion of the project | 17 | 18 | 5 | 10 | 50 | 2.84 | Accepted |
| 4. | Wastage and under-utilization of man-power and resources | 2 | 2 | 29 | 17 | 50 | 1.78 | Rejected |
| 5. | Abandonment of building project | 19 | 18 | 7 | 6 | 50 | 3.00 | Accepted |
| 6. | Reduced profit | 19 | 21 | 8 | 2 | 50 | 3.14 | Accepted |
| 7. | Dispute between parties involved | 15 | 15 | 11 | 9 | 50 | 2.72 | Accepted |
| 8. | Litigation | 14 | 14 | 6 | 16 | 50 | 2.52 | Accepted |
| 9. | Arbitration | 16 | 17 | 14 | 3 | 50 | 2.80 | Accepted |
| 10. | Damages | 20 | 14 | 6 | 10 | 50 | 2.88 | Accepted |

Table 3.3 shows that increase in final cost of project is the most ranked factor, that affects on-going project at South campus, Federal Polytechnic Ede, followed by time overrun, reduction in profit, abandonment of Building projects and damages

Table 3.4: Possible Solution to the Effects of Covid-19 Pandemic on Project Delivery

| S/N | Possible solutions | SA | A | SD | D | N | Mean | Decision |
|-----|---|----|----|----|----|----|------|----------|
| 1. | Contractor's should specify a realistic duration to execute the project | 20 | 19 | 10 | 1 | 50 | 3.16 | Accepted |
| 2. | Workers should be orientate on new techniques that will be practice on site due to pandemic guides. | 41 | 9 | 0 | 0 | 50 | 3.12 | Accepted |
| 3. | There should be more hired experience personnel to speed up the on-going project | 2 | 3 | 20 | 25 | 50 | 1.64 | Rejected |
| 4. | Payment should be made on time for worker's | 29 | 16 | 4 | 1 | 50 | 3.46 | Accepted |
| 5. | There should be proper communication and coordination | 31 | 14 | 5 | 0 | 50 | 3.52 | Accepted |

Table 3.4 shows that proper communication and coordination of work on site, ranked the highest as possible solution to the effect of covid-19 on project delivery, followed by prompt payment to workers, and then

contractors should follow up set out duration for the project and lastly workers should be orientated on new techniques to be practice on site due to the pandemic.

3.1 Findings

Based on the analysis of this research work, the study reflects that the sudden outbreak of covid-19 pandemic causes problem in the construction industry. Clients and contractors were unable to meet up with the time of delivery of institution projects.

Movement restriction was a major factor that affects timely delivery of the project, because during covid-19 pandemic, there was lock down period for some months, which led to stoppage of work on site. Another factor is government regulation on the number of people that can be on site at a particular time, this factor cause delay/extension of work, for the project. There was increase in the prices of Building materials due to lock down, which eventually led to increase in the cost of the project and inappropriate overall organization structure linking to the project

Analysis of this study also revealed that covid -19 lay down protocols like socio distancing; restriction of movement; washing of hands; and wearing of face mask; hinder effective operation of work during covid- 19 lockdown. The effect of the above factors as led to increase in final cost of project, time overrun, tying down of client capital due to non-completion of the project, abandonment of building project, reduction in profit, dispute between parties and damages. In solving this issues, workers should be orientated on new techniques that will be practiced on site due to pandemic guides in a way to avoid delay of work on site; payment should be made on time for workers, materials should be bought in bulk , and there should be proper communication and coordination. The aforementioned points are the possible solution to the effect of covid-19 pandemic on project delivery.

4 CONCLUSION

Covid-19 is a unique event that impacted the construction work done at South campus Federal Polytechnic Ede. It led to extension/delay of the projects, increase in cost of material and increase in the final cost of the project

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