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ADAPTING THE STANDARD FORMS OF CONTRACT TO MINIMIZE THE CONTRACTUAL EFFECTS OF COVID-19 ON CONSTRUCTION PROJECTS

Chathuranga Perera[1] and Roshani Palliyaguru[2]

ABSTRACT

The construction industry is a major economic driver in Sri Lanka. However, the construction industry was significantly affected by the responses made by the Sri Lankan government to prevent the spread of the COVID-19 pandemic. The effects of those government responses on construction projects are diverse as time, cost, and quality-related impacts. These effects resulted in numerous contractual effects that were mostly to be dealt with reference to the provisions made in the standard forms of contracts such as ICTAD/SBD/02 and FIDIC 1999 in Sri Lanka. Since no similar pandemic has affected Sri Lanka at this magnitude before, neither ICTAD/SBD/02 nor FIDIC 1999 have been drafted giving due consideration to such exceptional circumstances. Furthermore, no studies that researched these kinds of aspects can be found in the existing literature. Hence, this research aims to explore the effects of the responses made by the Sri Lankan government to prevent the spread of the COVID-19 pandemic on the construction industry and the possible adaptations of standard forms of contracts to address the contractual implications of those effects to mitigate the effects on the contractual parties in both building and civil engineering projects. A desk review was carried out to identify the existing provisions of ICTAD/SBD/02 and FIDIC 1999 to overcome the effects of pandemic situations, and three case studies, including two building projects and one civil engineering project, were used for the empirical data collection. Representing contractors, consultants, and employers, twelve semi-structured interviews were conducted within the three case studies. The research findings reveal that a collaborative approach with cost and time-sharing is the best approach to address the effects of a pandemic situation. Furthermore, defining terminologies, developing transparency in contractual relationships, and establishing an equal assessment basis can all aid in the contractual development of the ICTAD/SBD/02. As a result, the study suggests improving documentation practices, developing guidelines for amicable settlement, and eliminating the adversarial effects of ICTAD/SBD/02 through an equal assessment process. Thus, this research contributes to the further development of ICTAD/SBD/02 while also improving Sri Lankan building and civil engineering projects by reducing contractual issues in future pandemics.

Keywords: *Contractual Implications; COVID-19; FIDIC 1999; ICTAD/SBD/02.*

[1] Student, Department of Quantity Surveying, University of Vocational Technology, Sri Lanka, wncperera1992@gmail.com

[2] Senior Lecturer, Department of Quantity Surveying, University of Vocational Technology, Sri Lanka, rpalliyaguru@uovt.ac.lk

1. INTRODUCTION

An outbreak of pneumonia of unknown origin was first reported in Wuhan City in Hubei Province, China on 31st of December 2019. Subsequently, World Health Organization named the disease as COVID-19 and on 11th of March 2020, it declared the outbreak a pandemic (Central Bank of Sri Lanka, 2020). Sri Lanka is one of the countries hardest hit by the disease. Zin and Ahnuar (2022) elaborated that "*this pandemic was a new phenomenon, and there were limited legal references to refer to when deciding on the best way to deal with that contractual effect*". The COVID-19 pandemic has devastated the working world. Its impact, which varies by sector, is significant in the construction sector because construction is sensitive to economic cycles and construction companies and workers, in particular, were vulnerable to the sharp drop-in economic activity caused by the pandemic (International Labour Organization, 2021). Renukappa, et al. (2021) have pointed out a range of issues such as office closures and lockdowns, construction site closures, changes to progress meetings, changes in quality and health and safety procedures, etc. that have arisen due to COVID-19 in the United Kingdom. In addition to that, Gan and Koh (2021) revealed that the setting up of an interagency task force, temporary closure of construction worksites, systematic testing of every worker, management of infected workers at an appropriate care facility, and prioritization of COVID-19 vaccination in the construction sector are government interventions in Singapore, and such interventions lead to many contractual effects for the construction work (Gan and Koh, 2021).

In the same way, the government of Sri Lanka and public authorities imposed various rules, regulations, and guidelines such as "Guidance for Workplace Preparedness for COVID-19", "Health & Immunity Enhancement Guidelines for COVID-19 & Dengue" published by CIDA, and the "Coronavirus Disease 2019 (COVID-19)" Act to prevent the spread and control the COVID-19 pandemic. These regulations and guidelines imposed by the legally constituted public authorities have had serious effects on the contractual aspects of construction projects. Consequently, events such as payment delays, expiry of securities, suspension of work, terminations, etc., keep occurring and resulting in a chain of other issues. In summary, COVID-19 has led to the implementation of new rules to prevent the spread of the virus and the consequences of them are the inability to fulfil contractual obligations by the parties, which results in disruptions, delays, additional costs to the contractor, sub-contractors, suppliers, consultants, and employers, and some contracts being subject to impossibility where further performance becomes impossible (Kawmudi, et al., 2020; Vithana, et al., 2020; Pathirana 2021). Overall, because of the epidemic, Sri Lanka experienced an overall economic downturn (Roshana, et al., 2020).

2. LITERATURE REVIEW

2.1 OVERVIEW OF COVID-19

The COVID-19 disease, formally known as the 'Coronavirus disease' can be easily understood as the deadliest pandemic the world has faced so far in the 21st century. In parallel to the spread of the pandemic, the major economic activities of all trades and industries faced a severe blow to their normal functions. Both economies, on a global and individual scale, have severely been affected by complications from the combination of the above-mentioned pandemic situation and the relative economic downfalls (Kandewatta, et al., 2021).

The continuous spread across Sri Lanka of the COVID-19 pandemic started with the very first case, which was reported on the 10th of March 2020. The initial restrictive measure was to place a police curfew throughout the island to prevent all travel among citizens. The responsibility of containing and dealing with the virus was vested in a collection of government institutions and organizations, namely the Ministry of Health, Sri Lanka Medical Council, Tri-forces, and other essential services personnel (Roshana, et al., 2020).

2.2 SRI LANKAN GOVERNMENT'S RESPONSE TO COVID-19

A key factor that is crucial in facing uncertain times such as this pandemic lies within the strength of the government's stability to ensure a firm grip on the imposed regulations. Furthermore, the tracking of all suspected patients was successfully carried out with the help of the national intelligence network, which was based on an integrated plan with the aid of the Special Task Force (Pathirana, 2021).

The Government of Sri Lanka (GOSL) introduced various actions which helped to prevent, detect and respond to the COVID-19 pandemic in Sri Lanka. Aggressive "social distancing" measures were implemented in the entire country, including issuing travel bans to other affected countries and closing ports and airports, an island-wide strict curfew, imposing travel restrictions between provinces and districts, emergency health and economic measures, including several economic relief measures for the poorest segments of society and the most vulnerable sectors of business, an increase in government spending on healthcare and public safety measures, and the establishment of the Coronavirus Task Force, which effectively coordinated the health and containment measures. Quarantining also be identified as some key actions (COVID-19 Outbreak Impact on Sri Lanka and Recommendations, 2020). A summary of government actions to prevent the spread of COVID-19 in Sri Lanka is listed below:

1. Implement social distancing,
2. Imposed curfew and travel restrictions on the whole country and parts of the country,
3. Initiate quarantine centres around Sri Lanka,
4. Establishment of a Coronavirus Task Force and taking necessary economic relief measures, and
5. Issuing travel bans to other affected countries and the closing of ports and airports.

Since March 2020, several regulations and guidelines, such as ***Guidance for Workplace Preparedness for COVID-19*** (Epidemiology Unit-Ministry of Health & Indigenous Medical Services, 2020), and ***Health and Immunity Enhancement Guidelines for COVID-19 & Dengue***, were issued by the CIDA to control the pandemic situation (Construction Industry Development Authority, 2021). In addition to that, currently, the government has published the draft act titled "***Coronavirus Disease 2019 (COVID-19) (Temporary Provisions) Act, No. 2021*** to make temporary provisions to proceed with a judicial proceeding under the COVID-19 pandemic situation (The Democratic Socialist Republic of Sri Lanka, 2021). These guidelines/Acts are briefly described below:

2.2.1 Guidance for Workplace Preparedness for COVID-19

As per the Epidemiology Unit of the Sri Lankan Ministry of Health and Indigenous Medical Services (2020), the Guidance for Workplace Preparedness for COVID-19 was issued for making arrangements for the workplace and work force, which are listed below.

1. Regulations for compulsory hand sanitizing stations to all and stations at critical locations throughout the facility, including the main entrance,
2. Regular inspection of hand sanitizing stations, including refilling of hand sanitizing liquids and inspection of water availability at hand washing stations,
3. Strict enforcement on social distancing and compulsory usage of masks and face shields to all,
4. Discourage the touching of eyes and noses as it can easily be a reason for the spread of disease, and
5. Provide means to conduct possible work through an online platform.

2.2.2 Health and Immunity Enhancement Guidelines for COVID-19 and Dengue

This guideline was published by the CIDA to specify the responsibilities of or actions to be taken by employers and contractors to prevent the spread of COVID-19 and dengue, and a few of those actions mentioned there are summarised in Table 1:

Table 1: Duties of employers and contractors

Duties of Employers	Duties of Contractor
• Conduct thorough meetings with critical health officials and other main stakeholders in the project.	• Conducting of regular health care checks, including temperature checks, using infrared thermometers.
• Properly pre-planning all strategies & precautions to be used by administrative & contract provisions.	• The entrance is to be provided with a proper hand sanitizing facility.
• Providing all required PPE, including surgical masks and face shields, to all workers without any additional cost.	• The entrance security guard is to maintain a daily record of visitors.
• Provide financial allocations for safety precautions and PPEs required for both parties' workers against COVID- 19.	• Provision of living quarters to all workers present for the project with strict covid-19 protocols.

2.2.3 Coronavirus Disease 2019 (COVID - 19) (Temporary Provisions) Act

The Minister of Justice on 8th of June 2021 presented the Coronavirus Disease 2019 (COVID-19) (Temporary Provisions) Bill. The emergence of the new COVID -19 virus variant and the surge in the spread of the virus since March 2020 have resulted in cyclical lockdowns, curfews, and/or travel restrictions being imposed in Sri Lanka. The COVID-19 Bill is to make temporary provisions/provide certain legal facilities for the following situations where people are unable to perform certain actions due to COVID-19:

- To grant relief concerning parties to certain contracts who were unable to perform contractual obligations due to COVID-19. To assign alternative courts where a court cannot function due to COVID-19 circumstances.
- To conduct court proceedings using remote communication technology to facilitate the control of coronavirus disease 2019 (COVID-19).
- To grant relief concerning parties to certain contracts who were unable to perform contractual obligations due to COVID–19. If the times prescribed by law are not complied with because of a COVID-19 circumstance, inter alia, the instituting of action, filing of appeals, or performing any time-sensitive act, a further prescribed time will be permitted as described in the Act.

- If the party to a "scheduled contract' is unable to perform any obligations and/or exercise any rights under such a contract, an application may be made to a court, tribunal, or other authority established and empowered by law to hear and determine matters concerning the scheduled contract (The First Schedule of the Bill provides a non-exhaustive list of what is considered a "scheduled contract").

According to part IV (Temporary Relief in Respect of Contract) of this Act, it will provide temporary relief for the parties who cannot fulfil their rights and obligations due to the COVID-19 pandemic. Therefore, if any party fails to perform contractual obligations and rights due to the COVID-19, such party can request relief under this part of the Act to the court, tribunal, or any other respective authority established by or under any law which would otherwise have jurisdiction, authority, or power to adjudicate in respect of such contract under any applicable law. However, if a party has already claimed the relief according to the contractual provisions, but that party is unsatisfied with the given relief, they can seek further relief based on the provision (Part IV, Sub Section 30) stipulated in this Act.

2.3 EFFECTS OF GOVERNMENT RESPONSES TO THE COVID-19 PANDEMIC SITUATIONS ON THE CONSTRUCTION INDUSTRY

Construction industry members, including owners, developers, contractors, sub-contractors, and supply chain vendors, have experienced varying degrees of effects as a result of the COVID-19 pandemic. Every government in the world has been implementing various rules and regulations to prevent the spread of COVID-19 since January 2020. By adapting to those rules and regulations, the construction industry has been more challenged. Direct effects have ranged from decreases in goods and labour to project suspensions and, in some instances, terminations of parties or entire projects. Construction activities remain in flux in some parts of the world depending upon whether construction is classified as an essential business.

Kawmudi, et al. (2020) have reported that the key challenges the industry currently faces are delays in completion of the final project, for which the parties agreed to contractually while signing the contract, disturbances in the main supply chains, uncertainty in global markets, new economic challenges, poor experience in handling the current situation due to a lack of experience regarding a pandemic, financing difficulties for a smooth project flow, issues under legal aspects and a lack of sound experienced professionals to deal with the situation, suspensions of contracts for temporary timeframes, labour shortages due to travel restrictions, etc. The significant factor that contributed to the disruption of supply chains can be identified as the travel restrictions imposed by the government on an area basis. With travel restrictions, both labour and materials were significantly disrupted in their particular supply chain channels (Pathirana, 2021).

The additional requirements to strengthen health and safety controls (including COVID-19 testing for workers, temperature monitoring, and regular cleaning and disinfection of work areas and surfaces) have also had a significant impact on time, cost, and quality constraints while performing on a project. However, due to the pandemic situation, the contractors are required to continue to adhere to the government regulations that are published due to pandemic situations, and this will lead to rescheduling the original program. This may have delayed the progress of such work and increased the cost of completion (Kramer and Thadani, 2020).

2.4 DESK REVIEW ON THE EXISTING PROVISIONS IN STANDARD FORMS OF CONTRACTS TO OVERCOME THE EFFECTS OF PANDEMIC SITUATIONS

2.4.1 ICTAD/SBD/02 (Standard Bidding Document - Procurement of Works Major Contracts)

In the Sri Lankan construction industry, most of the construction contracts are governed by the Standard Bidding Documents (SBD) published by the Construction Industry Development Authority (CIDA). Every effect of a pandemic has a correlation to time and cost. After a thorough desk review conducted within the study, several clauses that are related to time and cost constraints and help address the effects of pandemic situations were identified. The relevant causes given in ICTAD/SBD/02 are presented in Table 2.

Table 2: The relevant ICTAD/SBD/02 clauses

Clause	Description
8.4	Extension of Time for Completion
8.5	Delays Caused by Authorities
13.6	Adjustment for Changes in Legislation
17.3	Employer's Risks
17.4	Consequences of Employer's Risks
19.1	Contractor's Claims
20.1	Force Majeure
20.2	Notice of Force Majeure
20.4	Consequences of Force Majeure
20.6	Optional Termination, Payment and Release

2.4.2 FIDIC 1999 Red Book

As SBD/02, FIDIC 1999 is also a popular standard form of contract in the construction industry of Sri Lanka. If the funding for the project is foreign, most of the governing standards documents will be foreign ones like JCT, FIDIC, etc. As with ICTAD/SBD/02, FIDIC 1999 also has several clauses that are related to time and cost constraints and help address the effects of pandemic situations. They are given in Table 3.

Table 3: Relevant FIDIC clauses

Clause	Description
8.4	Extension of Time for Completion
8.5	Delays Caused by Authorities
13.7	Adjustment for Changes in Legislation
19.1	Force Majeure
19.2	Notice of Force Majeure
19.4	Consequences of Force Majeure
20.1	Contractor's Claims

3. METHODOLOGY

According to Creswell (2014), there are three research approaches: quantitative, qualitative, and mixed-method approaches. The qualitative approach to the research was identified as the best-suited approach for this study. The first part of the study used existing literature to identify the responses of the government of Sri Lanka to the COVID-19 pandemic situation, the effects of those responses on the Sri Lankan construction industry, and the contractual provisions already available in the ICTAD/SBD/02 and FIDIC 1999. The second part of the study used an empirical data collection that was qualitative in nature to further explore the above factors and determine suitable improvements to the ICTAD/SBD/02 to minimize the contractual effects of such future pandemic situations. The data was collected through twelve semi-structured interviews conducted among three case studies, of which two are building projects and one is a civil engineering project, which is a road. Experts from the contractor, employer, and consultant sides who had been involved with the project since its inception were all interviewed via the Zoom platform in the three case studies. The empirical data was highly useful in validating the literature findings and assessing new facts. Table 4 lists the interviewees' and the project's profiles. The empirical data obtained from the interviews was analysed using the manual content analysis technique.

Table 4: General information of interviewees and case studies

	Case Study A				**Case Study B**				**Case Study C**			
Project Type	Building Project				Building Project				Infrastructure Project			
Client	Private-sector client				Public-sector client				Public-sector client			
Duration	42 months				650 days				730 days			
Approx. value	Rs.11.5 Bn				Rs.2.45 Bn				Rs.3.8 Bn			
Location	Colombo District				Colombo District				Vavuniya District			
Nature	35 Floors				14 Floors				95.48 km			
Interviewee	**A1**	**A2**	**A3**	**A4**	**B1**	**B2**	**B3**	**B4**	**C1**	**C2**	**C3**	**C4**
Profession	QS	QS	Senior QS	QS	QS	QS	QS	Contract Administrator	Planning Engineer	QS	QS	QS
Industry exp. (years)	7	10	18	6	8	5	9	7	8	12	10	3

4. DATA ANALYSIS AND FINDINGS

4.1 POSITIVE EFFECTS OF COVID 19 ON THE SRI LANKAN CONSTRUCTION INDUSTRY

As the literature suggests, the COVID-19 pandemic had a huge impact on the Sri Lankan construction industry. Similarly, the data obtained from the interviews suggests that this outbreak has had both positive and negative effects on the same. The positive effects identified by the interviewees include the incorporation of technology into the construction industry at somewhat higher levels than before, which was lacking previously. Most interviewees mentioned that "digitalization of work, to a certain extent," has supported the construction industry positively in improving communication while

combating the impact of COVID-19. It was found that through the adherence to health and safety aspects, workers' risk of contracting other illnesses such as the common cold and cough was significantly reduced.

4.2 NEGATIVE EFFECTS OF GOVERNMENT RESPONSES TO THE COVID-19 PANDEMIC ON CONSTRUCTION PROJECTS

The negative effects of government responses to the COVID-19 pandemic are four-fold: time, cost, quality and other aspects of construction projects. Table 5 below presents a summary of those negative effects of COVID-19.

Table 5: Negative effects of COVID 19 on the construction industry

Type of Effect	Negative Effects
Time-Related	Delay in construction programmes
	Authority delays (delay in approvals)
Cost-Related	Additional cost for health and safety
	Prolongation cost & Price escalation
	The additional cost in the resumption of work
Quality-Related	Material & labour scarcity
	Rectification work
Other	Unemployment & Sociological effects
	Less functioning supply chain

As far as the time-related effects are concerned, several categories were evident from the semi-structured interviews, which are, namely, travel delays, workforce limitations, site shutdowns, work disruption, material delays, which affected directly the construction program, and authority delays, where delays happened in approvals due to COVID 19. Therefore, these implications have negatively affected all three case study projects (i.e., the two building projects and the road project). One case study project was found to have a little reduction in productivity due to a lack of familiarity with personal protective equipment. As stated in the guidelines, the mandatory hand sanitizing process delayed the start time of one case study project on a daily basis, resulting in a significant delay in terms of a cumulative delay of one month.

When considering the cost-related effects of government responses, most interviewees agreed and explained that there was some sort of cost incurrence while adhering to them. Sometimes they were direct costs, and sometimes they were indirect costs. There were some direct costs associated with providing hand sanitization stations, promoting hand sanitizing techniques, providing personal protective equipment, and providing other additional health and safety measures stated in the new guidelines. Due to EOT, prolongation costs for site staff and contractor’s facilities were also a considerable amount. Also, costs have been indirectly affected in different ways, such as rectification work on resuming the work, unexpected price escalation in resources, additional guards, food and drink for them, care for the plant nursery plants, etc. during the curfew periods. Also, there had been sort of cost incurrence while taking actions to mitigate such negatives effects of government responses to the COVID-19 on your construction project. Geo bubble arrangement is a one method that has been used by contractors to mitigate the negative effects come from government responses.

It was found that very limited government responses have created quality-based effects on the building and civil engineering projects studied in this research. Accordingly, rectification work when resuming the work, such as removing formworks and scarcity of skilled labour, has led to a lack of workmanship. Similarly, conducting meetings adhering to health guidelines with a minimum number of participants has led to disturbances in communication. Referring to the government's temporary relief based on the Act and referring to monetary relief measures led parties to adopt alternative materials and solutions, which have affected the quality of the construction project in one or the other way. Apart from that, every interviewee's perspective was that achieving the expected quality in the project was their ultimate goal, and thus the quality should be intact for any reason.

Thus, the majority of interviewees confirmed the key challenges the industry faces are: delays in completion of the final project; disruptions in the main supply chains; uncertainty in global markets; new economic challenges; and financing difficulties for a smooth project flow, as identified by Kawmudi, et al. (2020), and they also emphasized that the contractor will incur further losses as projects are further delayed because there is no positive reaction to the cost incurrence from the employer. Thus, the data analysis confirmed that the challenges faced by the UAE construction industry due to the COVID-19 pandemic, as found by Rehman, et al. (2021), are also similarly applicable to the Sri Lanka construction industry.

4.3 APPLICATION OF EXISTING PROVISIONS OF STANDARD FORMS OF CONTRACTS TO ADDRESS THE CONTRACTUAL EFFECTS OF GOVERNMENT RESPONSES TO COVID-19 ON SRI LANKAN CONSTRUCTION PROJECTS

4.3.1 ICTAD/SBD/02 (Standard Bidding Document - Procurement of Works Major Contracts)

Almost all the clauses identified from the desk review on ICTAD/SBD/02 are applicable in addressing the effects of a pandemic situation, except for sub clauses 13.6, 17.3, and 17.4 because most interviewees stated that 17.3 and 17.4 are not applicable as the "pandemic" or "epidemic" has not been listed in the employer's risk list. As per the interviewees' understanding, the sub-clauses 20.1, 20.2 and 20.4 are applicable due to the phrase "*may include, but not limited to exceptional events*" stated **in the 2nd paragraph of** sub-clause 20.1 **of ICTAD/SBD/02**. As all the interviewees except one emphasized, "*there are no legislative changes, only the existing legislative implications are initiated."* Therefore, sub-clause 13.6 in ICTAD/SBD/02 is found to be not applicable in addressing the contractual effects of COVID-19 responses on construction projects. As a result, the new guidelines imposed by the government cannot be regarded as an adjustment to legislative changes, despite the fact that those new guidelines have impacted construction projects in terms of time, cost, and quality, as well as both contractor and employer in a variety of ways in both civil engineering and building projects. It confirmed literature findings and the utterance of Ratnayake (2020), in a webinar conducted by the Sri-Lanka Branch of International Chapter of Australian Institute of Quantity Surveyors (AIQS) in association with the Contractors Preservation Forum, "*Imposition of new regulations under existing laws, but no changes to Acts in Sri Lanka, but new regulations."* However, the *"*Coronavirus Disease 2019 (COVID 19) (Temporary Provisions) Act" does not fall under this as it is a new bill passed in parliament.

According to the interviewees, the contractor can raise claims when he considers himself entitled to any EOT or cost in connection with the contract under sub-clause 19.1 in ICTAD/SBD/02 in both civil and building projects, but they have to give proper notice and justify the claim with supporting documents. Nevertheless, it was found that, in some cases, the contractor has not been able to prove the actual time impact of COVID-19 on the project through their construction programme because of errors in the use of programming techniques in the initial programme submission, and thus delay analysis does not show the actual delay in the projects. That is a reason why some EOT claims remain unevaluated.

4.3.2 FIDIC Red Book 1999 1st Edition

Similar to ICTAD/SBD/02, FIDIC 1999 addresses the effects of the pandemic, and interviewees emphasized that the FIDIC 1999 clauses are very similar to the ICTAD/SBD/02 clauses and that most clauses have the same provisions. Accordingly, all the interviewees agreed that the sub-clauses 8.4, 19.1, 19.2, 19.4, and 20.1 apply. As per industry experts' perspective and elaborated in the desk review, FIDIC 1999 and ICTAD/SBD/02 have addressed the construction industry's related aspects and the pandemic situations to some extent. However, the implications and practice of these clauses are limited, as revealed by the interview findings. According to them, the "Force Majeure" clause is not applicable to the current "new normal condition" as per the definitions of clauses 19.1.b[3] and 19.1.c[4] sub clause which do not fulfil the conditions of the "new normal condition". "A new normal" is a state in which the economy, society, etc. settles down after a crisis, if it is different from the situation before the crisis began. It is confirmed that the bids called after the 1st wave and entered into a Contract cannot go for claims under "Force Majeure" because clauses 19.1.b and 19.1.c are not fulfilled.

Accordingly, it is clear that the impact of the Force Majeure clause in both ICTAD/SBD/02 and FIDIC 1999 has been able to address the time impact only and not the cost overruns. Accordingly, the implications of the Force Majeure clause have had a distinct approach during the first wave and after the first wave. So, all case study projects have been able to have Extensions of Time for Completion (EOT), but not the cost. Therefore, the contractors had to absorb all the risks of these additional costs, and they were not in a position to claim all the costs that occurred during the pandemic. Therefore, certain costs had to be covered under the contractor's site overhead. But there have been some instances where both parties have agreed and gone for amicable solutions to share the cost equally, and in some situations, contractors have not gone for claims; because that might harmfully affect their future contractual relationship with the employer.

4.4 POSSIBLE IMPROVEMENTS TO THE CLAUSES IN THE STANDARD BIDDING DOCUMENT (ICTAD/SBD/02) TO MANAGE UNFORESEEABLE SITUATIONS LIKE PANDEMIC SITUATIONS (COVID-19)

Interviewees suggested the following methods under three categories to address the project-related contractual effects of government responses to pandemics or similar situations in the future and deliver a quality outcome: collaborative measures, BOQ-

[3] Which (event) such party could not reasonably have provided against before entering into the Contract.
[4] Which (event), having arisen, such Party could not reasonably have avoided or overcome

related measures, and measures for the better conceptualisation of unforeseeable situations as shown in Figure 1.

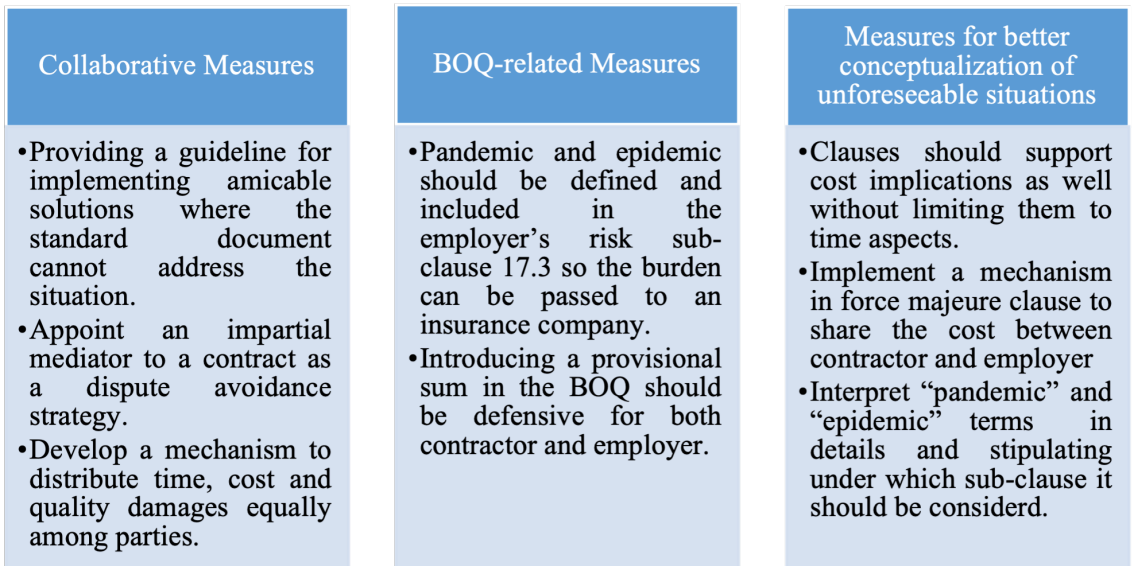

Figure 1: Possible improvements for the ICTAD/SBD/02

Accordingly, defining the epidemic and pandemic terms clearly and transferring the risk to an insuring company is essential to address the current issues. Finally, the data analysis suggests implementing a dispute avoidance and transparent mechanism to address pandemic and epidemic situations. It has to be developed with a risk-sharing perspective in terms of time and cost. Likewise, the implications of ICTAD/SBD/02 could finally lead to several changes in the industry.

5. CONCLUSIONS

The literature review was the main method used to identify the responses of the government of Sri Lanka to the COVID-19 pandemic situation and the effects of those responses on the Sri Lankan construction industry. Accordingly, several government responses, legislation, and acts were referred to that were trying to address the construction sector irrespective of whether they were building or civil engineering projects. The government's responses include both legal and health and safety concerns. However, among those several responses, CIDA had played a major role in the preparation of supplementary documents to support the construction industry, and the epidemiology unit and other health institutions had made those supplementary documents available to the public. Furthermore, a desk review was adopted to identify the existing provisions of ICTAD/SBD/02 and FIDIC 1999 to overcome the effects of pandemic situations.

The effects of the government's responses to the COVID-19 pandemic were further identified through an empirical data collection concerning three real-life contemporary projects (case studies) covering both building and civil engineering. Accordingly, it was identified that the major effects were recorded with respect to the time and cost-related aspects, and only a very limited number of effects were found on the quality aspects. Among several types of cost implications, prolongation cost, arrangement cost, price fluctuations, and hygiene cost were the main costs that were affecting both building and civil engineering projects.

Through the literature review, semi-structured interviews, and desk review, it was found that ICTAD/SBD/02 has more time and cost-related clauses that can be applied to deal with the effects of a pandemic situation compared to FIDIC 1999. Furthermore, the contractor has experienced significant effects from the pandemic situation, whereas the client has experienced fewer. Moreover, it was found that most of the clauses identified from the literature review and the desk review have been applied by both contracting and consulting parties in building and civil engineering construction projects, but they were not effective in addressing the whole set of effects. However, a major loophole identified in ICTAD/SBD/02 and FIDIC 1999 is the lack of provisions to address pandemic situations.

Semi-structured interviews within the three case study projects reveal key improvements needed for the ICTAD/SBD/02 under three headings: collaborative-type developments, BOQ-related developments, and measures for better conceptualization of unforeseeable situations-related developments. Accordingly, enhancing collaboration among contractors, clients, and consultants is an effective measure to mitigate the current issues in the construction sector where the standard book cannot give a specific guide. Furthermore, distinguishing between a pandemic and an epidemic is critical to dealing with the situation in a more precise manner, and the construction document-related developments were found to be essential for that. Also, research findings revealed that adaptation to the "new normal conditions" and providing facilities to the project staff, such as residential engineers, contractors' personnel, and laborers, is essential.

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