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Elements of Delays in Construction Management of DPWH Aurora District Engineering Office

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ABSTRACT: The Department of Public Works and Highways Department is the engineering and construction arm of the government, whose primary role is to constantly innovate in order to meet the best standards of competence when building public works and highways and to utilize infrastructure projects in an effective and efficient manner. While project implementation is closely monitored, unexpected complications can occasionally cause project delays. Delays and associated costs and disputes result in lawsuits, claims, and, in the worst-case scenario, project termination, all of which have a significant impact on the project itself. To acquire knowledge and understanding of the Elements of Delays in the Construction of the DPWH Aurora District Engineering Office (DPWH-ADEO).This was accomplished through an evaluation of documents obtained from DPWH-ADEO, as well as a survey of DPWH-ADEO managers, project engineers, and contractor's representatives using an adapted questionnaire. Three of the primary reasons for suspension in 2019-2020, according to information obtained, were weather-related events, the COVID-19 virus, and the pending completion of another phase. A survey questionnaire revealed that the three most common problems encountered in projects are rain, pandemic-related delays, and order changes. These findings could be used to develop an effective and appropriate construction management strategy for avoiding or, in the event of delays, mitigating DPWH Aurora District Engineering Office delays.

Keywords: Construction, Delay, DPWH

I. INTRODUCTION

Construction projects have numerous elements that may affect their successful implementation. Unpredictable issues and complications are unavoidable during the process. Some projects may exceed the contract schedule and experience delays, resulting in a slew of negative consequences for clients, consultants, and contractors.Construction delays are prevalent and recurring in poor countries, according to Toor and Ogunlana (2008), and the causes of these delays are similar. According to their research, delays in developing countries are caused by a lack of capital, technically inexperienced and less experienced local firms, an immature business climate, and challenges in legal and regulatory system. The key delay causes that contribute to project overruns, according to Hammadi and Nawab (2016), are related to the project owner's role, the contractor's involvement, funding, materials, and design documentation. Although several studies on delay issues such as financing and technical incompetence have been done, less focus has been placed on other variables that contribute to delays in government-funded infrastructure projects such as those handled by the DPWH-ADEO. The purpose of this paper is to address it and compare the results to those stated in previous research.

II. RESEARCH METHODOLOGY

A questionnaire was distributed in order to obtain important data for the study's goal. Quantitative questionnaires adapted from a study by Aedwin Regi Varghese and Shibi Varghese (2015) were used. The delay factors were enumerated and divided into five categories such as: financial related, design related, natural causes/external causes, management related and construction related. Questionnaires are then distributed to DPWH management staff, project engineers, and contractors via online Google forms.

The answers given by DPWH management, engineers and contractors were collected and analyzed as shown in Figure 3-1.

To assess the relative relevance of different causes, RII was calculated for each cause, with each calculation giving a different value depending on the cause. RII values were used to rank these factors.

The recorded data of completed projects from year 2019-2020 of DPWH ADEO was fetched and used to support and result of the ranked causes of delay.

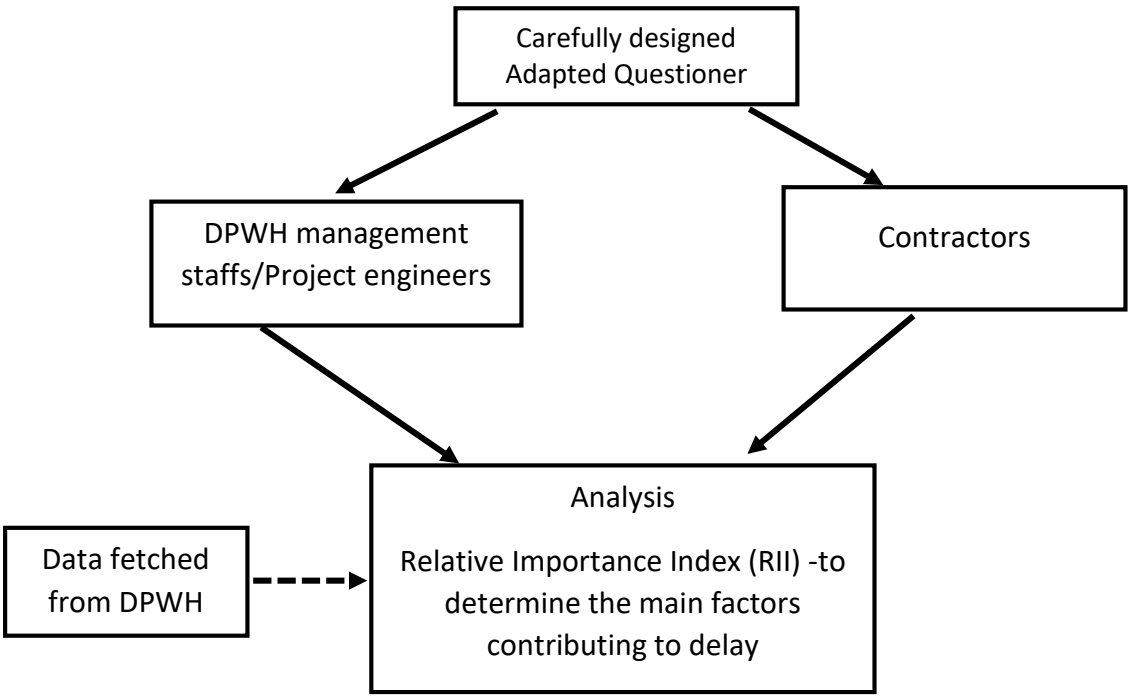

Figure 3-1. Flow of Data Collection and Analysis

III. RESULTS AND DISCUSSION

The data gathered from the records of DPWH-ADEO on their projects from 2019-2020, was being analyzed and found that there are 317 projects completed and 188 of that were encountered delays (59.3%).

Of these 188 projects, 141 were due to the weather, 71 were due to the Covid-19 pandemic and 14 to the lack of materials in the area.

Table 4-1. Data on DPWH ADEO Projects 2019-2020

2019-2020 DPWH PROJECTS

Reason of Suspension	No. of Suspension
Weather	141
Right of Way Problem	2
Obstruction of Public Utilities	1
Pandemic (Covid 19)	71
Awaiting for the Completion of other Phase	4
Scheduled Power Interuption	1
Christmas Season & to give way to the Public Consultaion among Public Market's Occupants	1
Non-availability of Materials in the Locality	14
Obstruction (Existing Building)	1
TOTAL	**236**

	Numbers of Projects
ROADS/BRIDGES	101
BUILDINGS	42
DRAINAGE/FLOOD CONTROL	26
WATER SUPPLY SYSTEM	5
SLOPE PROTECTIONS (Steel Netting)	14
TOTAL	**188**

***Only 188 out of 317 projects are affected by suspensions (59.3%)**

*Other projects do not have suspension

The findings of the analysis of quantitative data gathered using a survey questionnaire were presented as follows:

A total number of 50 people responded to the survey questionnaires via google form online. Most of them were from contractors (64%), the remaining were from DPWH-ADEO (36%). All the respondents were involved in the projects of DPWH-ADEO from 2019-2020.

Table 4-2. Respondents work Position

Work Position	Engineer (Contractor)	Consultant (DPWH ADEO)	Client/Client Representative (DPWH ADEO)
Frequency	32	14	4
Percentage	64	28	8

The majority of respondents belonged to 26-30 years of age, (30%), for 41-50 years of age, (32%) and 16% of the respondents were >50 years old.

Table 4-3. Classification of respondents by their age

Age in Years	26-30	31-35	36-40	41-50	>50
Frequency	15	7	4	16	8
Percentage (%)	30	14	8	32	16

The vast majority of respondents had less than 5 years of work experience (58%), while 18% had over 11 years of experience.

Table 4-4. Respondents 'years of experience

Experience in years	<5	6-10	11-15	>15
Frequency	29	12	6	3
Percentage (%)	58	24	12	6

The answers to the surveys are used to figure out the root causes of delays. In order to determine the main reasons, the relatively large index, RII, was calculated for each cause. The causes were classified on the basis of RII. The causes of the delays in each of these five categories rank from the highest to the lowest level, as illustrated in figures 1 to 5 below.

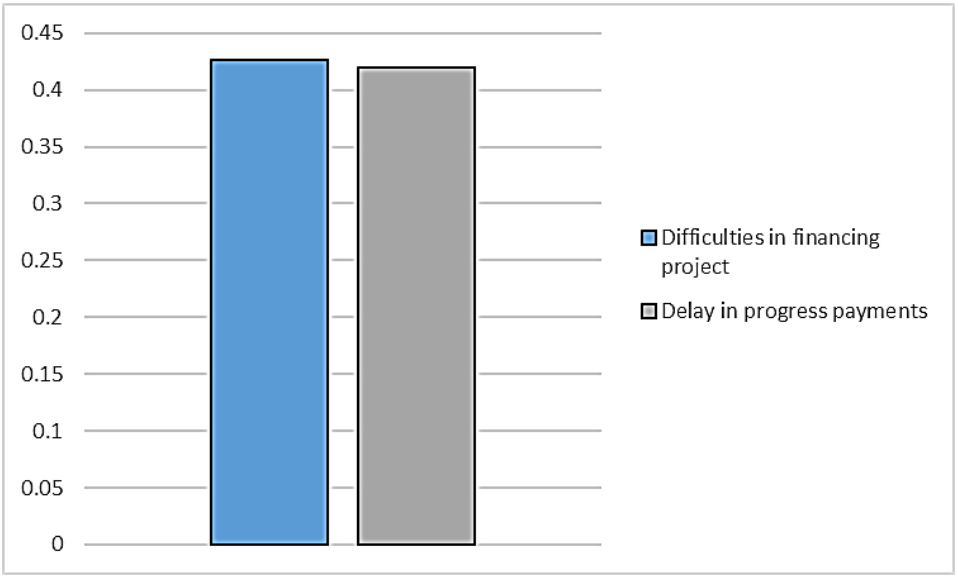

Figure 4-1. Financial-related Causes

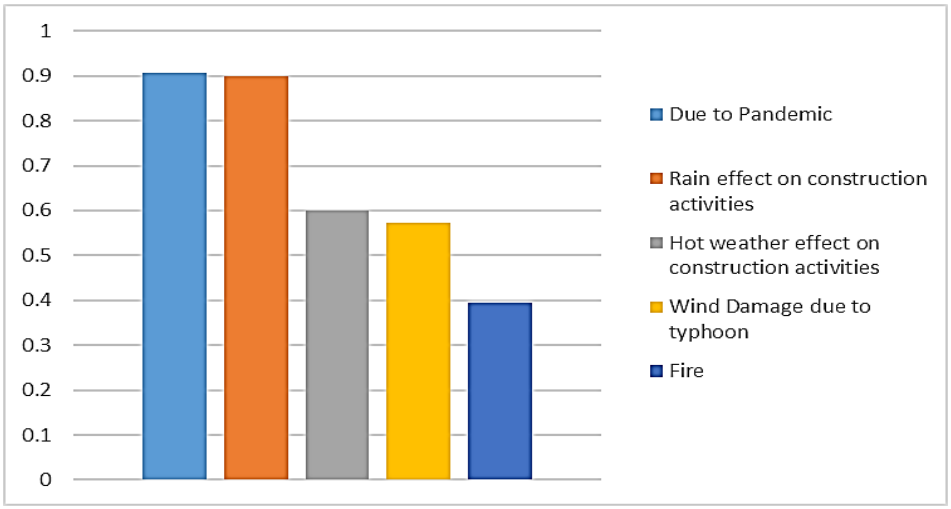

Figure 4-2. Design-related Causes

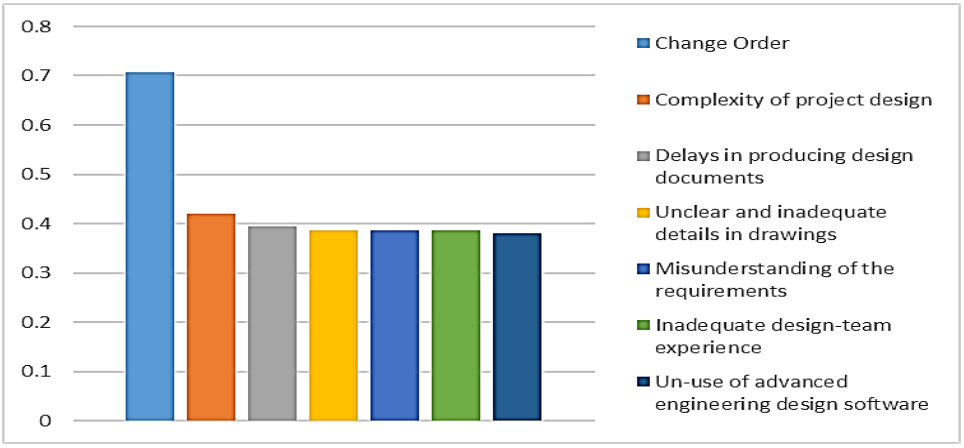

Figure 4-3. Natural/External Causes

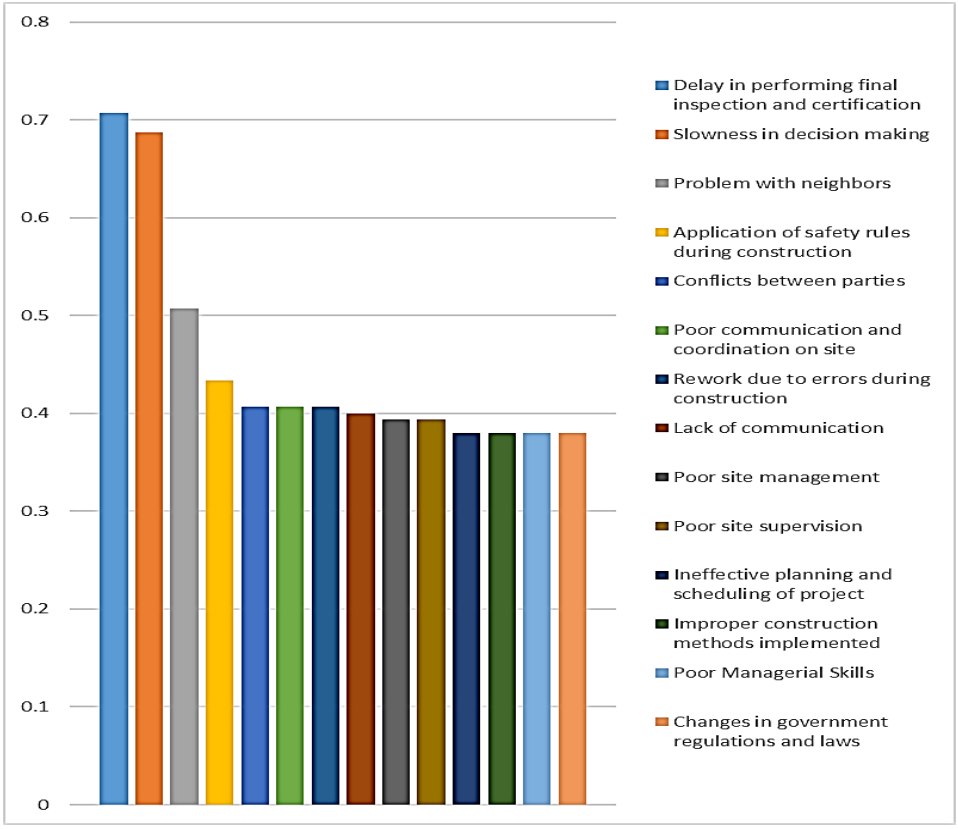

Figure 4-4. Management-related Causes

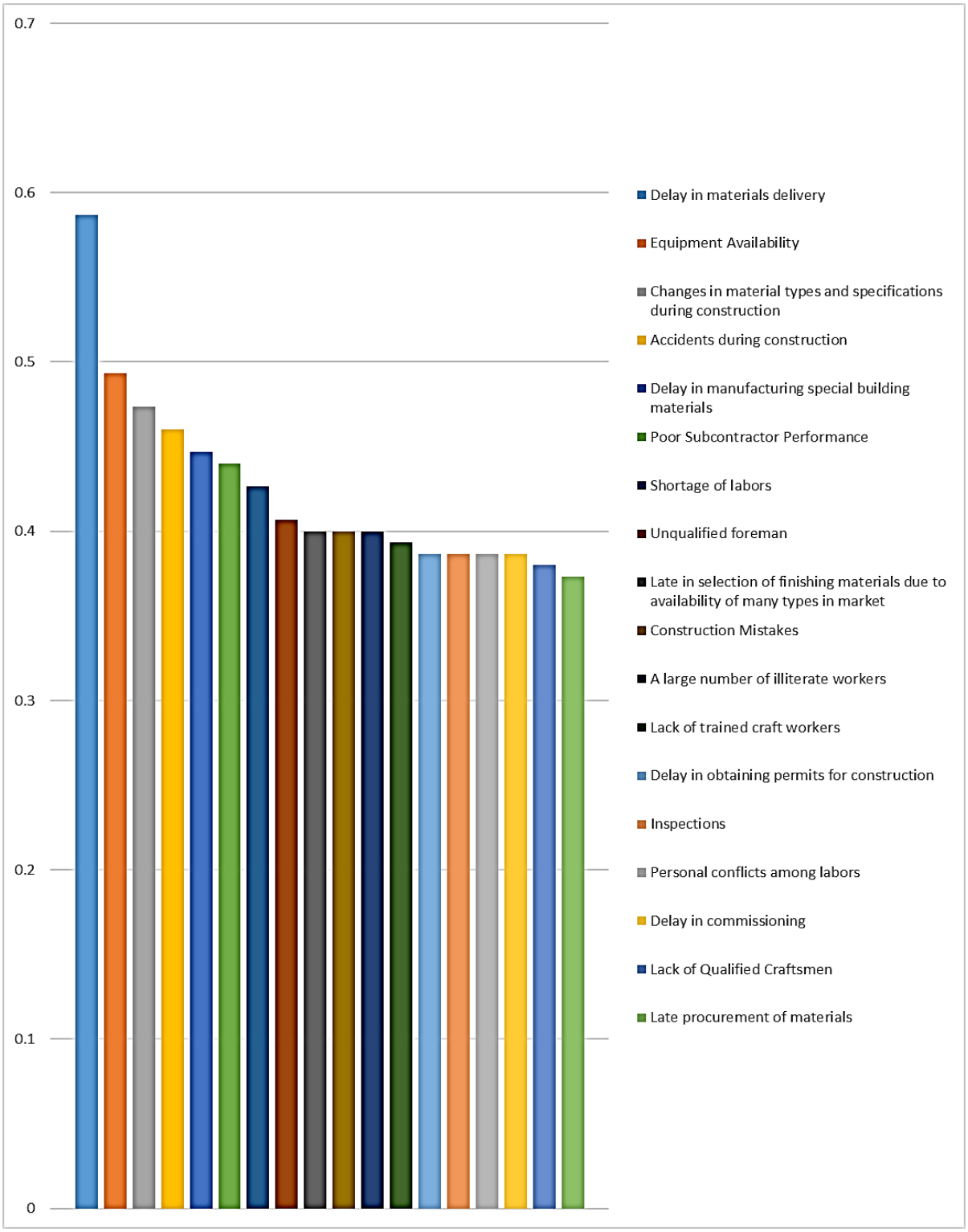

Figure 4-5. Construction-related Causes

Base on the ranking using RII, the top ten (3) most critical causes of delays are:

No.	Delay Causes
1	Due to Pandemic
2	Rain effect on construction activities
3	Change Order

The cause of delay due to the pandemic is excusable and non-compensable. The rain effect on construction activities is also excusable and non-compensable and change order is concurrent.

IV. CONCLUSION

A project can be successfully completed if we are aware of and understand the causes of delays. By examining the factors that contribute to delays, we can address any issues that may arise as a result of the delay problem. According to the findings, the majority of delays are due to natural or external factors. The majority of DPWH-ADEO's projects have been delayed as a result of unexpected on-site problems caused by pandemic and weather effects. This implies that, while we should prioritize financial and management concerns, we should also consider weather and external factors.However, the outcomes of study must be evaluated in the context of a building project, considering the diverse geographical areas.Additionally, it would be beneficial for future research to incorporate additional variables and indicators. A more comprehensive examination of the factors will enable a better understanding of the causes and solutions to construction delays.

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