

Construction Safety Management Assessment of the Local Government Unit of Dingalan, Aurora Philippines

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Abstract: Construction industry plays an important role in the economic development of any country. As construction industry is less automated and more labor intensive, construction workers are the foundation of this industry. Construction safety on project sites is of utmost importance due to the nature of the construction industry. However, it is usually a secondary concern in a market-driven society where the main concern is completing projects at the required quality with minimum time and cost. Thus, safety issues are considered only after an accident occurs at a construction site with follow up measures to improve working conditions, especially in developing municipalities like Dingalan, Aurora. Public works in Dingalan, Aurora include the safety and health as payable item and it must be implemented properly. Therefore, proper safety management in construction is of utmost importance; hence, this study aims to introduce a benchmark to measure construction safety through a proposed safety management assessment framework. Factors affecting construction safety performance were explored through a questionnaire survey conducted in Dingalan. The results suggest that a benchmark of construction safety should be considered across six dominant groups of factors: management commitment, management measures, implementation, project nature, individual involvement and economic investment. Management commitment is the most dominant factor that affects construction safety and consists of implementing organizational safety policies, assigning safety responsibilities at all levels, etc. The proposed management framework will facilitate a benchmarking process and initiatives for improving construction safety performance in developing municipalities.

Key Words: — *Occupational safety and health, Covid-19 pandemic, Inspection, Contractors, Accidents, Workplace.*

I. INTRODUCTION

Construction industry is considered as one of the most influencing sources of economic growth and development of any country. It also has a great contribute to the Philippine national economy. Construction involves a little percentage of the overall workforce. But it is regarded as the most hazardous industry due to its unique nature and the safety record of building construction industry has always been poor. This industry is one of the most hazardous industries.

Despite the significant improvement since the Occupational Safety and Health Act of 1970, workers still experience high injury and fatality rates in comparison to other industries.

The construction industry had 40 fatalities equivalent to 22.5 percent of the all-industry total. Compared to other industry groups, construction had the second highest in number of death cases next to real estate, renting and business activities.

There's a 3,383 cases of occupational injuries in the construction industry in year 2000. This is estimate less than 5.0 percent of cases in all non-agricultural establishments employing at least 20 persons. Of all the total cases reported in construction, 2,154 cases or 63.7 percent had no reported lost workdays, which means that the injuries suffered by workers required only medical treatment or first aid and the workers were able to return to their work on the same day or the day after the accident. And about 36.3 percent (1,229 cases) of reported injuries had lost workdays.

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Occupational Safety and Health (OSH) is a discipline with wider scope that specialized in many fields which aims the promotion and maintenance highest degree of physical, mental and social well-being of employees in all occupations; preparation and preservation of working conditions; prevention of work-related health issues; protection of workers against risk

Occupational safety and health (OSH) is connected with any employee in any organization including Local Government Unit (LGU). Risks that are related to OSH may mitigate the aims and objectives of LGU.

One of the risks that extremely weakens the aims and objectives of construction Industry is the Covid-19 pandemic. This global health crisis has greatly disrupted the construction in every location of the Philippines.

In the Dingalan, Aurora, Contractors are affected by the pandemic and also their financial. Because of this reason, they want to increase their profit by eliminating the safety standards but the agency of the government like DPWH, Provincial Engineering Office and Municipal Engineering Office continue the monitoring of the construction and make sure that the safety program is implemented accordingly.

The main objectives of this study are as follows:

- To investigate the current safety status in Local Government Unit of Dingalan, Aurora.
- To analyze the safety factors those influence the safety performance in construction sites.

This research aims to establish how important (OSH) Occupational Safety and Health is in construction Industry. This study will also know how constructors cope with the risks that they are taking while working.

II. LITERATURE REVIEW

The construction industry has been forced to adapt very important challenges and work out project-by-project solutions to lessen the delays and other impacts caused by COVID-19 while protecting commercial interest.

This research discussed how COVID-19 is affecting the construction industry and best practices for owners and developers when responding to these challenges.

Here are some important details to remember: Workplace safety guidelines must be in place, systemic approach in handling

COVID-19, maintain record of impacts, and determine cost and schedule impact, and new negotiation points.

Construction Safety is the prevention of incidents and reduction of injury or damage in properties. Safety on the construction site is vital to protecting workers, protecting the public, and keeping the job running on time.

The OHS Management System (OHSMS) gives a tailored advice and links to support in managing Covid-19 related risk for the health, safety and well-being of workers.

III. METHODOLOGY

3.1 Research Design

To determine and analyze the problems encountered, the researchers used quantitative approach in their study and used descriptive in terms of research design. Descriptive research is defined as a research method that describes the characteristics of the population or phenomenon studied. This methodology focuses more on the “what” of the research subject than the “why” of the research subject.

The technique of gathering data will be systematic, consequently, the researchers chose quantitative as their approach. Moreover, the design used is descriptive as the researchers aim to study and describe the importance of Construction safety. Descriptive quantitative research is fitted to study because of the data collection advantage which provide a lot of information, this can be used for future research or even developing a hypothesis of your research object. And we can conduct in the respondent’s natural environments which ensure that high-quality and honest data is collected.

3.2 Research Locale

This study was conducted and designated in the area of Dingalan, Aurora depending on the places of the randomly selected respondents. Each and every one can be participant to the study but the researchers chose this locale as it is the accessible and a great deal of feasible respondents can contend with. The study shows the importance of safety in the construction industry.

3.3 Population and Sampling

The researchers used Cluster Random Sampling Technique in finding respondents, wherein only constructors were selected from the whole population of Dingalan, Aurora. In this technique, the participants are chosen based on the

group/location they belong to. Exclusively 50 constructors with age ranging 20-50 years old were selected by the researchers from the whole population to know the importance of construction safety.

3.4 Research Ethics

In this study, the researchers first established a title suggestion from Professor Rick Donald S. Manzon, PIE, CSSGB. The researchers wrote a letter of approval to perform the study in the relevant venue, as well as a consent letter for the respondents to participate in this study.

Approaching Municipal Engineering Office in Dingalan, Aurora to conduct the study for the persons working on site. And ask the contractors and the workers if they are willing to answer the study.

3.5 Research Instrument

To collect data for this quantitative analysis, the researchers used questionnaires to collect the appropriate information to assist the researchers in understanding the significance of construction safety welfare of the workers. Questionnaire is used to collect information regarding experiences that involves a structured way aiming to organize the data will be gathered. The survey will be taking down for superior analysis of data. The respondent will be given a set of questions that they are required to answer. (Yes or No). The content of the questionnaire is for Engineer, Contractor, Workers and Driver/Operator. They will answer the question related to safety environment of their site.

3.6 Data Collection

In terms of data collection, a questionnaire is the simplest and most straightforward process, particularly in this quantitative approach. After the respondents have completed their responses, the researchers formulated a percentage technique based on each answer to the following questions. Following that, the researchers placed on a graph the collected data based on the constructors' responses.

3.7 Data Analysis

Each and every data were statistically analyzed with the use of percentage technique. This technique is used to quantify and calculate the knowledge collected in this study based on the responses of the respondents. This is often used to measure the average percentage of each detailed answer to a single question.

The formula to be used was: $\% = F/N \times 100$.

Where,

F = answer

% = percentage

N = number of respondents

IV. RESULT

Table.1. Presentation, Analysis, and Interpretation of Data

This table shows the number of respondents answered the survey questionnaire. Three constructors (45%), nine workers (15%), two engineers (10%), six driver/operator (30%).

Position	Number Of Respondent	Percentage
Contractor	3	45%
Worker	9	15%
Engineer	2	10%
Driver/Operator	6	30%
Total	20	100%

Table.2. This table shows the type of the project that respondents are involved. Ten horizontal (50%) and ten vertical (50%).

Position	Number Of Respondent	Percentage
Horizontal	10	50%
Vertical	10	50%
Total	20	100%

Table.3. Based on the answer of the Respondents

S.No.	QUESTION	YES	NO	INTERPRETATION
1	Is there a full-time Safety Officer on site in the project?	7 (35%)	13 (65%)	It shows that the majority of the people on site don't know that there's a safety officer in their site but it is necessary to site.
2	Did you are wearing proper Personal Protective Equipment while you are on site?	14 (70%)	6 (30%)	It shows that only 30% of the people working on site were not wearing proper PPE. Maybe because of the weather. And not critical activity on the horizontal projects.
3	(For Driver/Operator) Is there a regular check-up/ maintenance for the unit?	6 (100%)	0	It proves that the equipment on site have regular maintenance and working properly on site, some accident happened in equipment is due to human error.
4	Complete signage's are located in site?	14 (70%)	6 (30%)	70% of the respondent say's that there have complete signage's on site. It's a paid item by the government so the contractor must comply to this.
5	Do you feel safe in your workplace?	17 (85%)	3 (15%)	85% of the respondent are feel safe to their workplace. Although construction have a lot of danger, they know how to manage it.
6	Did you do the Toolbox Meeting before the start of activity?	15 (75%)	5 (25%)	75% of the Contractor in Dingalan conduct orientation and toolbox meeting before the activity to prevent accident and more accomplishment on site.
7	(For Workers) Did you use the safety harness every time you climb for more than 2m?	4 (44.4%)	5 (55.6%)	Majority of the respondent say's that they don't use harness every time they climb for more than 2m. It's dangerous but maybe the contractor cut the cost for this.
8	(For Workers) Do you have proper training or NC II on your designation for the project?	7 (77.8%)	2 (22.2%)	Majority of the skilled workers on site have NCII training. Dingalan have 2 TESDA training center and NCII certificate is needed for job application
9	Did you Experience major the accident on site?	5 (25%)	15 (75%)	Only 25% of the respondent say's that they experience major accident on site. The activity here in province is not too critical and majority of the workers are in horizontal projects.
10	Is there a first aid kit ready on site in case of accident happens?	15 (75%)	5 (25%)	Only 25% of the construction site in Dingalan don't have first aid kit. It's the another result of cost cutting of the contractors.

V. CONCLUSION

From the survey of 20 persons in different position working on site in Dingalan, Aurora, the correlation between their level of awareness on safety, in general, & their level of performance was determined.

After the survey results been analyzed, one of the most important things to do is checking all the equipment, tools and machines, to make them comfortable while working because it will help them to lessen their fear and it will not be an obstruction for them to do their project.

VI. RECOMMENDATION

Here are recommendations and reminders in workplace before and after work. First, always check or inspect the equipment, tools and machines on a regular basis in order to keep themselves safe from accidents. Then, maintain the workspace tidy at all times to reduce the number of obstacles that can arise in the workplace. Also, may the workers always do their tasks without putting their mind the problems that are not related in the work as it will also be the risk of the accident that may encounter at work. And make the inspection their routine at the beginning of their work because it will lead them to a success project without any incidents at work.

And last, the Constructors must concentrate on diligently completing their projects in order to keep their wellbeing healthy, as their projects would be interrupted if an injury occurs.

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