STAKEHOLDERS AWARENESS OF SAFETY LEADERSHIP THROUGH CONSTRUCTION SAFETY MANAGEMENT SYSTEM IN INDONESIA

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ABSTRACT

Construction workplace safety has become serious issues among global companies. Improvement on occupational safety and health has been carried out. However, construction still becomes a sector with the highest accident rate. Particularly in Indonesia, construction contributes to 32% of accident rate followed by transportation, forestry, and mining. Main driver to improve safety performance is safety leadership as the frontline part of Construction Safety Management System (CSMS). Since it is a non-technical aspect, stakeholders' awareness is doubtful. Therefore, this study aims to describe Indonesia construction stakeholders' awareness of safety leadership as part of CSMS. Questionnaire was distributed to 693 respondents comprises of government, planners, consultants, private contractors, and State-Owned Enterprise (SOE) contractors. The result was analyzed with descriptive statistic to reveal the stakeholders' level of awareness. SOE contractor has the highest awareness of safety leadership. It is considered as obvious finding since SOE contractor becomes dominant in Indonesia's construction industry. The majority of big-classified contractors are SOE. Meanwhile, contractors' BOD is the lowest. The BOD commonly uses managerial leadership to run the company rather than safety leadership. However, the safety leadership should be owned by every stakeholder in construction industry whether they are in high or low management level.

Keywords : Construction; Construction safety management system; Safety leadership

INTRODUCTION

Workplace safety has become serious issues among global companies (Lun & Wahab, 2017). Improvement on occupational safety and health has been carried out in many countries. However, a large number of accidents still occurred, particularly in construction (Okpala et al., 2019). Compared to others, construction is the highest sector of accident rate in Indonesia (Alfiansah et al., 2020). It has accident rate of 32 percent and followed by transportation (9%), forestry (4%) and mining (2%). Many factors have contributed to the number. In general, Levovnik, et al. (2020) stated that safety performance is the final output from the effective implementation of Construction Safety Management System (CSMS). From the perspective of Indonesian regulation, Ministry of Public Works and Housing Regulation Number 10 Year 2021 concerning CSMS comprises of four fundamental aspects to ensure the safety performance, i.e.: technical safety, occupational health and safety, public safety and environmental safety. Those aspects are basis for developing a decent safety culture to improve the safety performance (Esterhuizen & Martins, 2016). One of the main drivers of improving Safety Performance is Safety Culture (Filho & Waterson, 2018). Safety leadership is a key factor in building a

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good safety culture (Oswald & Lingard, 2019). The safety culture afterwards become the main factor to alleviate the accident rate and highly influenced by the leadership. Therefore, leadership is the first factor to complete to ensure the effectiveness of CSMS implementation. Leadership in construction project (further will be called as safety leadership) is one of the main drivers of the highly effective CSMS implementation (Ma, et al., 2018). Strong safety leadership is gradually being considered as the key to improve safety performance of construction projects (Wu et al., 2016). For some countries where the construction industry is facing significant safety challenges, including Indonesia, the safety leadership becomes more important. According to Machfudiyanto et al. (2019) through several survey in construction projects in Indonesia, safety leadership is the main cause to the success of safety culture improvement by adding 30,9% success rate. Lack of leadership from stakeholders consideres as affecting factor of a low-safety performance project (Wu et al., 2017). The stakeholders awareness of this factor becomes essential to be answered. Since the safety leadership is often considered as non-technical aspect, many stakeholders disparage its importance. Previous safety leadership studies have more focus on leadership at micro or project level (Sarah, 2020). Meanwhile, there may be other stakeholders which have greater impact outside the project level, e.g., government body as regulator or project owner. Since the regulation (Ministry of Public Works and Housing Regulation) of CSMS in Indonesia is also published in the early of 2021, the implementation has not yet been optimum. Nevertheless, every involved stakeholder should be aware of safety leadership as part of CSMS although the regulation is quite new. Therefore, this research aims to identify the awareness and implementation level of CSMS in terms of safety leadership from various stakeholders in Indonesia's construction industry.

Safety leadership is an interactive process between two parties: the leader and the worker in the construction site to achieve safety (Zhang, et al., 2018). An evaluation did by Wu, et al. (2016) shown the relationship of safety leadership between the project owner, contractor, and sub-contractor. The result shown safety leadership significantly affecting safety performance. Hence, safety leadership creates a safety culture that can determine safety performance in a construction site (Esterhuizen & Martins, 2016). Many previous studies have examined the effect of safety leadership on safety performance. However, most of the previous studies focused only on a leadership model consisting of transformational and transactional leadership. In addition, previous safety leadership studies focus more on leadership at the micro-level or project level (Sarah, 2020).

Good safety leadership can lead to a small number of work accidents in construction (Lun & Wahab, 2017). The main principle of safety leadership is a leader in every organization—regardless of their hierarchical level of function, location, and position—must focus on continuously improving employee's safety through communication, training, and interaction with construction workers (Skeepers & Mbohwa, 2015). Safety leadership, as an element of a Safety Management System, must naturally have these criteria. Good safety leadership always has room for improvement and must be continuously improved, based on the evaluation. For an effective evaluation, it needs an

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instrument to measure the effectiveness of safety leadership.

There is a safety leadership measurement model that has been developed previously, namely a measurement research model that refers to the 7-5-9 safety leadership theory (Sarah, 2020). Li, et al. (2020) had researched the effect of safety leadership on safety citizenship behavior through the safety attitude of railroad workers, with the dimensions used as a measure of safety leadership in this case study, namely leadership behavior, security issues, and safety control using the questionnaire method.

According to a review by Ojuola & Sheriff (2018), there are five critical areas that used as aspects in any leadership model of worker representatives, i.e.: the role of the leader, the leader's attention to others, the distance between the leader and the team members, the style of the leader in making decisions, the motivation of the team members, and the focus given to the growth of team members. They argued that the relationship between agents requires a way in which leaders can nurture relationships, build trust, and encourage effective feedback to improve safety outcomes based on the principles of connectivity, interdependence, and feedback in Safety-Critical Organizations (SCO). Ojuola, et al. (2020) suggested to adopt the existing safety leadership framework in the study as a basis for further empirical studies, with aspects that are part of safety leadership, namely safety concern, safety policy, and safety motivation. They conclude that safety-critical organizations need leadership that influences followers to behave safely, act as role models and show a deep concern for safety.

The construction industry is the riskiest industrial sector due to its unique, dynamic, and temporary nature (Mohammadi et al., 2018). It is necessary to have a safety leadership measurement model in the construction industry that can optimize the Safety Management System in Indonesia. The basic motivation in this study is to understand the measurement of safety leadership so that safety performance can be improved.

And another one that is no less important is a lack of clear-cut contractual safety responsibility is one of the main problems in construction safety. Therefore, it is in the interest of all project parties to assign proper contractual safety responsibilities before the execution of the contract (Nabi, et al., 2020).

METHODS

Data was collected from Indonesia's construction stakeholders. The instrument for this research is a Likert-scale based questionnaire. It contains several questions to measure the awareness level of stakeholders on safety leadership. There were 693 respondents which consist of planner/designer, supervision consultant, contractors' project manager, contractors' BOD, central and local government, and State-Owned Enterprise (SOE) contractor. The data were analyzed using the descriptive statistic method to obtain the mean of stakeholders' awareness. The result of this statistical analysis was used for the basis of the qualitative analysis.

RESULTS AND DISCUSSION

Safety leadership is an important part of the Construction Safety Management System (CSMS) to generate better safety performance in higher projects. Furthermore, safety leadership is a sub-knowledge in leadership with focus on influencing other's safety. However, not every stakeholder in the construction industry is aware of the need for safety

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leadership. Referring to the very strong result in **table 1 and table 2**, contractors' BOD has the lowest awareness on the safety leadership. Generally, the Board of Directors is not directly responsible for keeping the safety of the construction in the project location. Even so, a high level of awareness from BOD can drive the level of safety for the manager, supervisor, and team project of the company. Another stakeholder with low awareness of safety leadership is the planner/designer. Considering many references have stated planners ignored construction methods from the design calculations. Therefore, it is natural for designers or planners to have low safety awareness. Nonetheless, if safety is underestimated in design it could lead to fatality, especially for the contractor worker. Many accidents have occurred due to design mistakes during the project planning. One of the stakeholders with high awareness is the Central & Local Government. In the construction industry, Central & Local governments can act as both service users and regulators. This result is encouraging for construction service corporations in Indonesia. With high awareness of safety construction from the government, the policies made would lean more toward the safety side. It will be a difficult situation if the government prioritizes more on the schedule and budget projects. Thus, ignore the construction worker safety. The stakeholder with the highest awareness of the safety leadership is a State-Owned Enterprise (SOE) contractor. In Indonesia's construction service market, contractors with high qualifications are dominated by SOE contractors. Yet, the private sector in Indonesia only owns 30% of high qualification contractors. Although, many SOE contractors in Indonesia's construction service market also have good work results. SOE contractors with great financial strength can ensure a good work result and excellent construction safety maintenance. There are cases found where contractors with unhealthy financial strength can lead to high fatal risks in the construction site. This is due to the tendency to prioritize more on cost and schedule in the project. Additionally, ignore or second prioritize other aspects, including safety. Human resource program development on SOE contractor is also one of the best programs in Indonesia. With this program, SOE contractors can produce construction industry leaders in Indonesia with excellent safety leadership

Ministry of Public Works and Housing Republic of Indonesia has been published a regulation to ensure the CSMS to be well-implemented. It is the Minister of Public Works and Housing Regulation Number 10 Year 2021. The scopes of CSMS as stated on the regulation are focused on 4 aspects, i.e.: 1) construction engineering safety; 2) occupational health and safety; 3) public safety; 4) environmental safety. Further, this regulation directly mentions the safety leadership. It states that first element of CSMS is leadership and workers participation in ensuring the construction safety. The leadership afterwards followed by construction safety design, support, operation, and evaluation. Therefore, the safety leadership has been regulated in Indonesia's construction industry so every stakeholder needs to be aware of this critical issue.

CONCLUSION

Construction safety has become serious issues globally. It is, in fact, the sector with the highest number of accident rate. Especially in Indonesia, the issue had resulted some temporary termination of construction projects. To improve the safety performance, stakeholders need a good safety leadership. However, there is

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a few stakeholders with lower level of awareness on safety leadership. SOE contractor has the highest awareness of safety leadership. It is considered as obvious finding since SOE contractor becomes dominant in Indonesia's construction industry. The majority of big-classified contractors are SOE. Government, both central and local, is the second highest level of safety leadership awareness. It considered as delighting finding for other stakeholders. As government is the project owner (mostly, especially in infrastructure projects) and regulator, their action may affect directly to others. The published policies regarding construction may stand for safety performance. Currently, the Government of Indonesia through Ministry of Public Works and Housing has published the Minister Regulation Number 10 Year 2021 regarding CSMS. This is a form of manifestation of the high awareness of government to the construction safety. In the other hand, contractors' BOD has the lowest awareness. The BOD commonly uses managerial leadership to run the company rather than safety leadership. However, the safety leadership should be owned by every stakeholder in construction industry whether they are in high or low management level.

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Appendix

Table 1. Respondent Education Level

Education Level	**Total 693 Respondents**	
Senior High School	29%	201 person
Bachelor Degree	53%	367 person
Master Degree	17%	118 person
Doctoral Degree	1%	7 person

Table 2. Stakeholders' Level of Awareness on Safety Leadership

Level of Awareness' Stakeholders	**Very Strong**	**Strong**	**Neutral**	**Weak**	**Very Weak**
Planner / Designer	21,0%	50,0%	22,0%	6,7%	0,3%
Supervision Consultant	22,0%	48,0%	21,0%	8,2%	0,8%
Contractors' Project Manager	23,0%	46,0%	24,0%	6,7%	0,3%
Contractors' BOD	20,0%	46,0%	24,0%	6,7%	0,3%
Central & Local Government	23,0%	48,0%	23,0%	5,7%	0,3%
State-Owned Enterprise Contractor	30,0%	53,0%	14,0%	2,9%	0,1%

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