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## Performance evaluation indicators for implementing occupational safety and health management policy in small qualified construction services business entities

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**Abstract.** One of the successes of a construction operation is determined by the service provider as the executor of construction activity so that the competency of the service provider will determine the implementation of construction activities. The performance of construction work is said to be good if it meets the time, quality and costs following the contractual agreement that has been agreed with the service user. The Occupational Health and Safety Management System is one of the determining factors in construction work that is still not considered by a Construction Services Business Entity in Indonesia. Existing regulations and laws have heavily regulated performance appraisal indicators related to the implementation of the Occupational Health and Safety Management System. This study tries to look at the effect of the assessment indicators on the implementation of the Occupational Health and Safety Management System that has been regulated in existing regulations to small business entities to be able to see the effectiveness of existing regulations and can be input to existing regulations related to the assessment of construction services small qualification construction services business entity.

### 1. Introduction

The construction company is one of the major influences in supporting the development of development in Indonesia. One of them can be seen from the total infrastructure funding budgeted by the government for five years, amounting to Rp5,559 trillion for all sectors, both government and private [1,2]. BPS data related to the number of contracts completed by construction service providers from 2004 to 2015 grew an average of 20% per year. The ability and capacity of national construction are very influential on the success of the construction sector, in this case, the performance capabilities of service providers which then become very important to know. The success of construction activity is closely related to the implementation of the Occupational Health and Safety Management System (SMK3). Work safety issues in Indonesia are also determined by how service providers have complied with and implemented government policies regarding work safety [3]. The impact arising from work accidents is quite large, in addition to the loss of life and decreased quality of life of workers, work accidents in construction projects also cause project delays, increased project costs, medical burdens, and other negative consequences. Work accidents in construction projects rank second after work accidents in factories or manufacturing plants. Referring to BPJS Employment data, work accident cases that occurred in 2017 as shown in figure 1, have recorded 123,041 incidents with 3,173 dead victims. Whereas in 2016 (until November) there were 105,182 incidents with 201 fatalities of 2,382 people during 2017.



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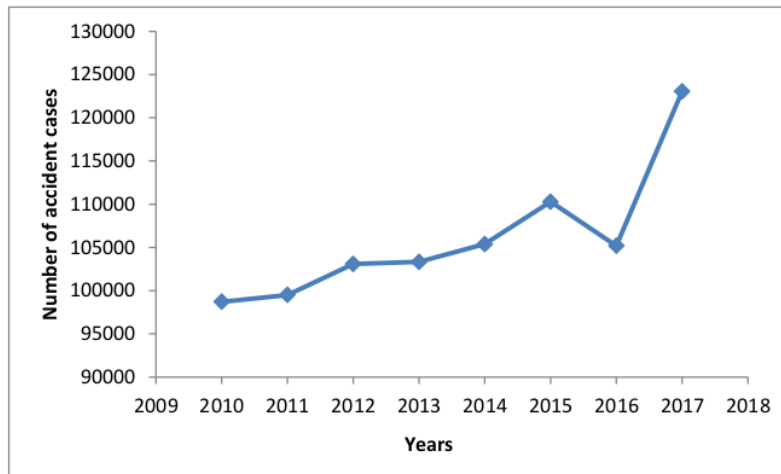


Figure 1. Accident cases in Indonesia

According to BPJS Employment statistics, an increase in occupational accidents is approximately 20% compared to 2016 nationally [4]. Total work accidents in 2017 amounted to 123 thousand cases with a claim value of more than IDR 971 billion, this figure increased from 2016 with a claim value of only IDR 792 billion. Data from the National Construction Services Development Institute (LPJKN) as shown in figure 2 states that the number of construction service business entities in Indonesia currently is 610,235 business entities, with a comparison of the number of Small Business qualifications 502,957, Medium Qualification 101,278 and Large Qualification of 5,896 business entities.

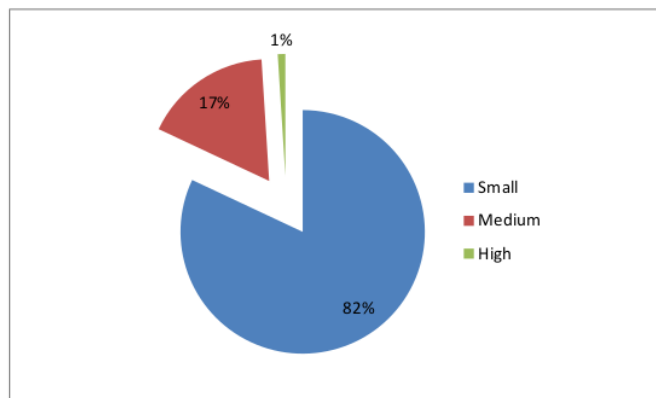


Figure 2. Number of construction service business entities in Indonesia

The data on the number of small business qualifications above has a very significant comparison of the number of small business entities, with almost 82% in Indonesia. The majority of small construction service business entities use a skilled workforce in carrying out construction work. The number of certified skilled workers is still small compared to the total number of skilled workers in Indonesia [5]. The number of small-scale construction service business entities that are not

accompanied by the use of certified skilled workers will lead to a high enough risk of work accidents. Proportion data The proportion of Indonesian Construction workforce 2015 - 2018 shows that the total number of skilled workers working in the construction sector is 8,300,297 construction workers, while the number of certified workers is 197,146 skilled workers. Referring to the problems, it is a very necessary in-depth study to measure the extent of the performance of the implementation of the OSH Construction policy at the company level, namely by the Small Qualification Services Business Entity and at the project level.

## 2. Literature review

The government has issued various laws and regulations concerning the Construction Health and Safety Management Standards (OHS) to be adhered to and implemented by construction services business entities with the aim of protecting the work safety of construction workers, construction service companies and also the environment in which construction projects are carried out. The impact of construction accidents can affect from various levels, starting from the micro-level (project level), then meso level (company level) to macro-level (national level) [6].

In-Law Number 02 of 2017 [7] concerning Construction Services the Central Government has a responsibility for the creation of a conducive business climate, transparent construction of services, fair business competition, and guarantee of equal rights and obligations between service users and service providers. With the responsibility of the central government in question, the government is given a mandate by the Law to have the authority to develop a performance system for service providers in the implementation of construction services. The performance of construction services business entities following the mandate of the Construction Services Act 2017 [8] is one indicator that is considered in the selection of service providers.

The obligation to administer health management systems and work safety for large companies through the Manpower Act has only produced 2.1% of the 15,000 more large-scale companies in Indonesia that have implemented a K3 Management System [4]. The problems related to work safety in Indonesia are not only about the quality of the policy that has been implemented in the construction work in the field [5,7].

Small qualification business entity in carrying out work with a small value but has considerable risk. Wirahadikusumah [4] states that there are two types of hazardous construction works, namely work carried out at altitude and excavation work. Research on the risk of workplace accidents in apartment construction projects conducted by [6] shows that the greatest risk is material falling from the material being lifted, electrocuted, overwritten by equipment, and falling from a height. Construction services business entities (BUJK) viewed from the employer side have had a fairly good standard of work safety. Companies with high construction projects have implemented NSPK OHS quite well, it is because business entities carry out activities the construction has understood the existing regulations, the requirements related to the contract, the business entity has ISO and OHSAS certification. This is inversely proportional to the condition of the small qualification construction services business entity that does not yet have a clear understanding of the existing NSPK K3 and is related to the investment costs of having ISO and OHSAS certification which can be expensive, in practice this will lead to the problem of work accidents is quite serious due to the inability of the business entity that will have an impact on the victims of workplace accidents that will befall the construction workers, which of course will have an impact on the credibility of the business entity and substantial financial losses.

The previous research which to evaluate the application and constraints of the application of OHS in building projects in Cirebon Regency and to know the differences in the application of OHS based on the scale of the project. Finding that Constraints to the application of OHS, in general, are the budget, the culture of workers who are not familiar with the application of OHS and the impact of the application on the costs and selling prices of property construction. From all the conditions and conditions of the small qualification construction services business, it makes it difficult for small qualification construction service business entities to apply the laws and standards set by the government, while government regulations apply to all qualifications of construction services business

17 entities. The purpose of this study is to analyze which indicators can be implemented by small qualification construction services business entities in accordance with applicable government regulations in applying the standard of SMK3 to a project with a small qualification. This research is expected to be an input in the laws and regulations that will be formulated by the technical ministry in the field of construction in evaluating small construction services business entities.

### 3. Research methodology

This research will begin by conducting a literature review regarding the rules and regulations that have been regulated related to construction, after conducting a field survey using questioner and interview methods, the next step is to analyze the data through processing the data obtained from the results of questioner distribution and interviews. So that conclusions can be obtained. The survey, Archive Analysis, case studies are four things in this research strategy. The strategies can be seen in table 1.

**Table 1.** Research strategies following the formulation of the problem

Problem Statement	Frequently Asked Question	Strategy
What are the OHS assessment indicators in the applicable laws and regulations?	What	1. Archive analysis 2. Literature Study
What indicators of OHS assessment are considered important to be carried out first by a small construction service business entity under the capability of the business entity according to the applicable laws and regulations	How	1. Case study 2. Survey
What small construction service companies can apply OHS assessment indicators by the capabilities of the business entity according to applicable laws and regulations	What	1. Case Study 2. Literature Study 3. Survey

Primary data retrieval in this study will be carried out through observation and interviews using questionnaires aimed at the person in charge of small qualification construction service companies domiciled in East and West Sumatra as many as 121 small construction services business entities that are still in the form of CV (Commanditaire Vennootschap) or command partnership [7,8,9]. Small-scale construction services business entities generally do not have a special division or special technical person in charge of OHS handling in construction work, so that the person in charge of a business entity or company owner of a small qualification construction service business usually functions as a technical person in charge. It can be justified and does not conflict with the applicable laws and regulations [11]. Secondary data in the form of literature and applicable laws and regulations governing SMK3, in addition to previous research related to indicators of performance evaluation of SMK3 construction services business entities, also became the basis of this research. Documents that include K3 work program, company K3 policy statement data, emergency response organizational structure, list of K3 laws, documentation of the application of K3 and K3 Evaluation are also secondary data used in this study. Descriptive data analysis in this study will be conducted to conduct interviews to obtain information related to SMK3 which has been carried out on construction projects by small qualification construction service companies.

To find performance evaluation indicators for SMK3 small construction business entities, the questionnaire has been adjusted to 5 variables with each indicator following applicable regulations and laws according to table 2. The research method uses the Analytical Hierarchy Process (AHP) method by using expert choice software used in this study to determine the priority of the indicators of each of the SMK3 variables that can be implemented by small construction services business entities. The following are the results of questionnaires that have been processed using Expert Choice software which is then sorted according to the highest priority.

#### 4. Findings

Based on data processing using AHP from 121 questionnaire data that has been collected, the results are outlined in table 2.

**Table 2.** Result and findings

OHS Commitment and Policy of service provider companies		
Ranking	Variabel	Value
1	OHS policy formulation	0.301
2	Calculate the OHS cost plan	0.237
3	The role of leaders in OSH training	0.194
4	There are policies for specific OSH issues, environmental policies, HIV AIDS, drug abuse, and narcotics	0.136
5	Service Providers communicate OHS Policy to all workers, guests, contractors, customers and suppliers in the right manner	0.132
OHS Planning		
Ranking	Variable	Value
1	Safety Talk to all Projects	0.208
2	Evaluation of the effectiveness of RK3K	0.184
3	RK3K Update on Job Changes	0.180
4	OHS campaign periodically	0.169
5	periodic K3 inspection	0.139
6	Measurement of OHS goals and objectives	0.120
Operational		
Ranking	Variable	Value
1	Site office eligibility standards	0.78
2	Monitoring OHS Performance of Subcontractors	0.72
3	Temporary rest area (rest area) in the project area	0.70
4	Pedestrian-only access	0.69
5	Pedestrian-only access	0.68
6	Hazard identification and risk assessment on design changes	0.67
7	OHS training documentation	0.66
8	OHS communication	0.66
9	Proof of OHS participation of all Workers	0.66
10	Matriks list of PPE tools	0.66
11	Description of duties and responsibilities in the organizational structure of service providers	0.66
12	P3K and P3K room	0.65
13	OHS Training	0.65
14	Training program evaluation of OHS	0.60
15	periodic evaluation of competency to all OHS staff	0.57
OHS Performance checking and evaluation		
Ranking	Variable	Value
1	Check and Evaluate the Implementation of OHS Objectives and Programs	0.194
2	Monitoring Work Environment Measures for hazards	0.174
3	Medical Check-Up (MCU) program for employees	0.172
4	Work Equipment Inspection and PPE	0.166
5	Work Accident Investigation	0.163

6	The availability of data and statistics on accidents, illness due to work and near misses (nearmiss)	0.132
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From the results above, it can be observed that from each stage of the implementation of SMK3 small construction service companies have chosen what variables are important to be implemented, starting from commitment and K3 policy, the variable K3 policy making is the first choice that can be made by business entities Small qualification construction services, Available policies for specific OSH issues, Environmental policies, HIV AIDS, drug abuse, and narcotics are the last choices to be implemented and are not considered too important by service business entities with small qualification constructions.

The K3 safety talk planning indicator for all stakeholders on the project becomes the first choice that is felt for a small qualification construction service business entity, whereas the measurement of K3 goals and objectives is not too important to be implemented, this indicates that small construction business entities do not feel the need to measure the OHS goals and objectives that have been implemented to evaluate the implementation of OHS in a construction activity. In the indicators of the implementation and operation of SMK3 from 15 variables, the standard of site office feasibility is the priority of business entities to take precedence in the implementation of SMK3, periodic evaluation of competencies for all K3 staff has not been a priority for small construction services business entities. Regarding OHS inspection and evaluation, the process of examining and evaluating the implementation of OHS goals and programs is prioritized by small qualification construction services business entities and providing availability of data and statistics on accidents, work-related illnesses and near misses that are not felt by small-scale construction services business entities

## 5. Conclusion

Based on the findings and discussion, several improvements in the implementation of the SMK3 Instructions for special construction projects for Small Qualification Construction Services Business Entities are four factors greatly affect the performance of the implementation of SMK3 Instructions on specific construction projects for Construction Services Business Qualifications al: (i) OHS Policy factors; (ii) OSH planning; (iii) operating and operating factors and (iv) OHS inspection and evaluation factors. Indicators of OHS policy formulation and budget provision for OHS costs are still very important elements to get attention to the OHS Policy factors. As for the K3 planning factor, the indicators of the implementation of Safety Talk are very influential. Small construction service business entities in the process of the OHS implementing evaluation process is important.

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