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Evaluation of the Implementation of Occupational Safety and Health Management Systems in Building Construction Projects in the Public Works, Spatial Planning and Land Affairs Agency of Kepulauan Riau Province

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Abstract: *Work accidents in every construction project are increasing in government projects, so an evaluation of the implementation of the Occupational Safety and Health Management System (SMK3) is needed in companies, particularly those with a construction service budget of less than 15 billion, which are categorised as small companies so that these companies are often ignored in the evaluation of the implementation of the occupational safety and health management system. In addition, each company must provide a conceptual design of the construction safety management system to guide the company when winning the tender. The many challenges and obstacles in the Construction Safety Management System (SMKK) cannot be separated from companies' lack of understanding and desire to implement the occupational safety and health management system, which is the output in every implementation of construction project work. Therefore, it is necessary to evaluate the company by referring to the construction safety management system design and the results of the occupational safety and health management system implementation that the company has carried out.*
On the other hand, only a few studies have evaluated using the CIPP method in assessing occupational safety and health management systems based on context, input, process, and product (CIPP). The research method used is a descriptive research design that uses observation, interviews, and structured questionnaires through purposive sampling to take research samples so researchers can better organise research subjects. In addition, the study uses a combination of qualitative research methods equipped with quantitative data to obtain more comprehensive data from the evaluation research on implementing the occupational safety and health management system in companies. Based on the results of the study that were able to be identified by researchers, the problems of companies and workers occurred more due to the lack of commitment to Occupational Health and Safety (K3) and the implementation of the occupational health and safety work culture in construction projects, both commitment from the company and commitment from workers to the occupational health and safety, which will have an impact on the implementation of occupational health and safety in work culture.

Keywords: *SMK3, SMKK, K3, CIPP, commitment, work culture*

INTRODUCTION

Optimising human resources is crucial for organisations to achieve company goals and develop employee competencies in strategic thinking, planning, and controlling activities. Improving employee performance can drive organisational success, primarily if supported by adequate work environments and equipment. However, in the construction sector, the pressure to complete work quickly often leads to negligence, which leads to work accidents and harms workers and companies. Therefore, in 1999, the International Labor Organization (ILO) introduced the concept of decent work, which guarantees workers human rights, such as freedom, equality, security, and dignity. This decent work includes flexibility, security, social

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dialogue, adequate income, a safe working environment, and a balance between work, family, and personal life. In addition, the ILO collaborated with international organisations to update OHSAS 18001 to ISO 45001 in 2018, emphasising the importance of worker participation in the OSH management system to improve safety, health, security, and the work environment.

In implementing the occupational health and safety management system in Indonesia, there is an occupational safety and health management system that is an essential part of organisational management that aims to implement occupational health and safety policies and manage risks related to safety and health in the workplace. In Indonesia, the occupational safety and health management system has been regulated in various regulations, such as Law Number 1 of 1970 and Government Regulation Number 50 of 2012, emphasising the importance of planning, implementing, monitoring, evaluating, and improving occupational health and safety. This program requires companies with more than 100 workers to coordinate the occupational health and safety policies, although it sometimes causes multiple interpretations for companies that have workers below that number. In addition, implementing an occupational safety and health management system requires the involvement of management, workers, and work environment conditions in an integrated manner, which aims to create a safe, efficient, and productive workplace.

The initial attention of business actors in occupational health focused on occupational safety, particularly in protecting workers from accidents. However, with the development of the construction services sector, which is very vulnerable to the impacts of work, attention has begun to expand to the overall health of workers, including physical and mental health (Mondy and Noe III, 2005). When workers feel safe and protected, they work more effectively, positively impacting the company. However, implementing occupational safety and health programs in the field is still less than optimal. Several obstacles, such as worker non-compliance, lack of supervision, no sanctions from the company, and minimum OHS training, often hinder the effectiveness of OHS policies. So, to overcome this problem, construction companies need to evaluate the implementation policy of the occupational safety and health management system they have implemented so far.

This evaluation is essential to minimise the risk of work accidents and ensure that occupational health and safety implementation runs according to government regulations. Therefore, this evaluation must consider the government's policies and the factors that influence occupational health and safety implementation in the field. By identifying problems

from both company management and its workers, it will be able to find inhibiting factors and formulate appropriate solutions that can help improve the effectiveness and efficiency of the occupational health and safety implementation, both at the management level and among workers in the field. To maximise the evaluation, researchers need an evaluation model that can carry out evaluation stages both on progress and finish the project, which means a comprehensive evaluation model by conducting formative and summative evaluations. It is hoped that the results of this evaluation will impact service providers and service implementers in finding out how to reduce the risk of accidents and occupational diseases so that a work environment is created that supports worker welfare and company productivity.

Based on that, the researcher tries to focus on the problem by evaluating according to existing regulations regarding the implementation of the occupational safety and health management system carried out by the company as a service provider with a nominal work value of <15 billion for building construction projects at the public works, spatial planning, and land agency of the Kepulauan Riau Province through the use of a type of model that the researcher will determine based on in-depth research. Therefore, there are several objectives that researchers want to achieve, as follows:

1.) Determining an evaluation model to evaluate the implementation of the occupational safety and health management system by the company.
2.) Knowing the company's problems or obstacles in implementing an occupational safety and health management system.
3.) They are analysing the role of companies and their workers in implementing occupational safety and health management systems through research instruments that researchers have prepared.
4.) Get evaluation results for solution development as input for public works, spatial planning and land agency of Kepulauan Riau Province.

LITERATURE REVIEW

Etymologically, the word "management" comes from the old French "ménagement," which means the art of carrying out and arranging. In the terminological context, experts define management in various ways. According to Stoner, as quoted by Wijayanti (2008: 1), management is the process of planning, organising, directing, and supervising the efforts of members of an organisation and the use of human resources and other organisations to achieve

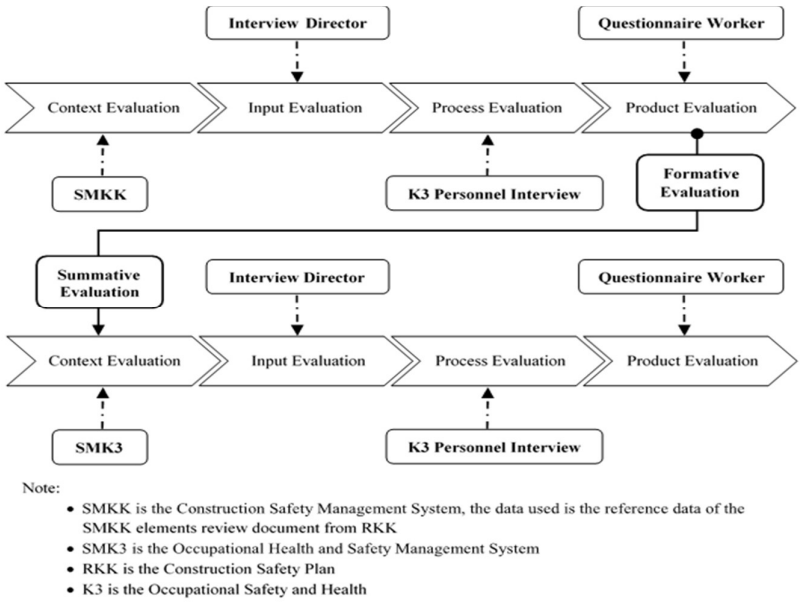
predetermined goals. Meanwhile, Robbins and Coulter (2014) define management as coordinating work with different people to complete the job effectively and efficiently. Both of these definitions illustrate the importance of the role of management in ensuring the achievement of organisational goals through sound resource management and coordination. From the various definitions and views on management outlined by the author, it can be concluded that management is a complex process that involves the science and art of managing multiple resources to achieve organisational goals.

Furthermore, Terry & Rue (2015) identified management as a process that includes planning, organising, leadership, and supervision, while Nawawi (2003:52) added that implementation and budgeting are part of the management process. There are six main elements in management: men, money, methods, materials, machines, and markets (Adamy, 2016:2). Although the definition of management varies, its essence remains focused on the effective and efficient use of resources, concerning the context of this study which focuses on conducting evaluations, which is an essential process in assessing and comparing the implementation of a work implementation. Following the view of Sondang P. Siagian (Harsuki, 2012:62), it will be used as a model in the study of the occupational safety and health management system (occupational safety and health management system) and related policy programs, including the regulatory aspects of the construction work management system (the construction safety management system).

Based on several objectives of the research researcher and after conducting a study on evaluation models, the researcher used the CIPP evaluation model as a research framework. Daniel Stufflebeam (2003) developed the CIPP evaluation model, a comprehensive framework for evaluating programs, projects, or systems. Cipp stands for context, input, process, and product. The CIPP evaluation used in this study aims to find out:

1.) Has the company's planning document been implemented?
2.) How does the company implement the plan into the project?
3.) How does the company reduce obstacles and challenges in the project?
4.) Has the company successfully implemented the company's planning?

Based on this, the researcher developed a CIPP evaluation model based on the needs of this research, as follows:



Source: researcher (2024)

Figure 1. Conceptual framework

METHODS

Type of Research

In investigating the implementation of the company's occupational safety and health management system, a qualitative descriptive method is used through in-depth descriptions and collecting information in primary data such as direct project observation and interviews. On the other hand, to determine the impact of the implementation on workers, a quantitative method is used to measure the level of success of the implementation of the occupational safety and health management system by the company, which is calculated from all company workers based on the results of distributing questionnaires and direct filling carried out by correspondents.

Population and sample

This study uses four (4) companies with different projects that use the purposive sampling method to take research samples so that researchers can better organise research subjects based on their wishes. The number of workers from all four companies is 102, not included in management. In addition, the interview results will be processed using the NVivo tool. In

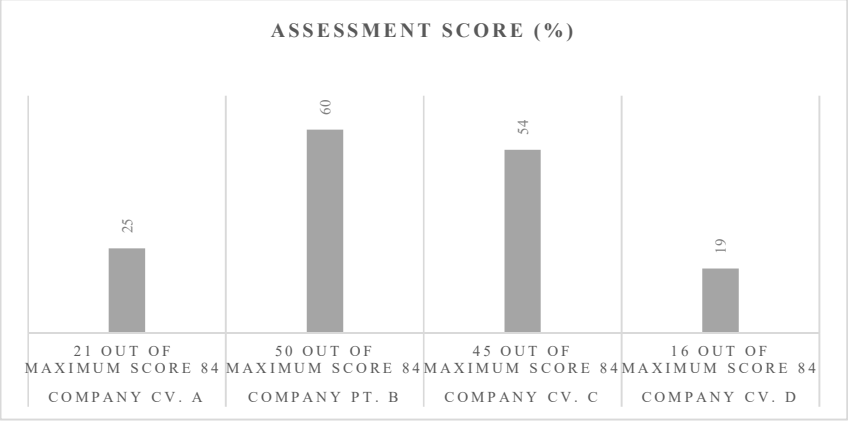
contrast, the questionnaire results will be processed using the SPSS tool to determine each question variable's average.

RESULTS AND DISCUSSION

Results of formative evaluation

In conducting this evaluation, the researcher focused on the construction safety management system document with the following explanation:

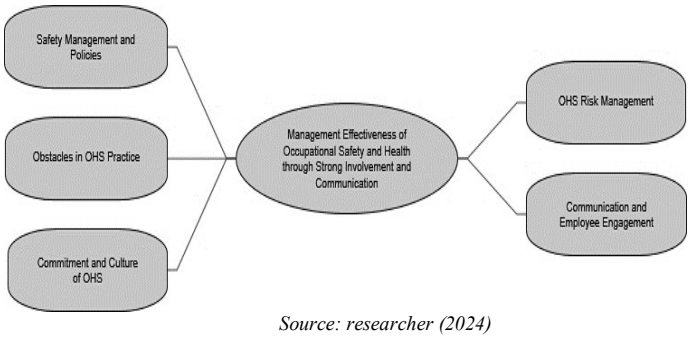
1) The results of observations in four (4) companies regarding the construction safety management system (the construction safety management system) through the offering of construction safety plan (RKK) documents, which were re-evaluated by researchers together with the supervisory consultant.



Source: researcher (2024)

Chart 1. Assessment score of the construction safety management system documents

1) The results of interviews with directors from the four companies to determine both the company's implementation and solutions related to the implementation carried out

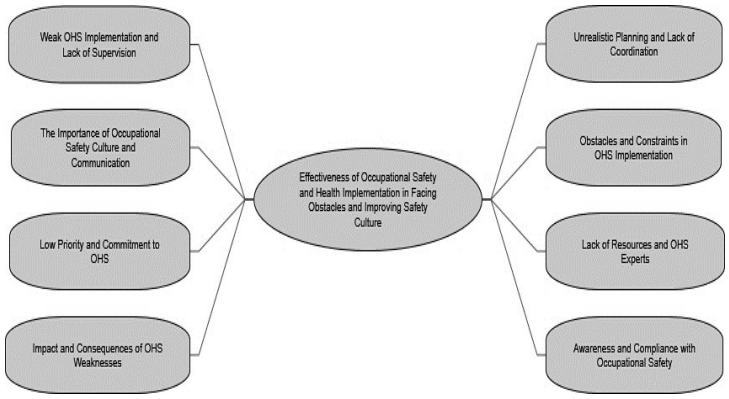


Source: researcher (2024)

Figure 2. Mind mapping of director interview

Various perspectives on companies' implementation of occupational health and safety in construction management show that the main focus is management, policies, and commitment to occupational safety. Company PT. B emphasises the importance of improving occupational safety management and policies, while company CV. D focuses on the commitment and work culture of occupational health and safety, which involves the company and the workers. Company CV. A highlights the necessity of knowledge in occupational health and safety risk management and company CV. C emphasises the importance of safety management and the occupational health and safety challenges. Further, the theme "management effectiveness of occupational safety and health through strong involvement and communication" was chosen as a common thread. This theme illustrates that the effectiveness of occupational health and safety management depends on how the company can manage communication and employee involvement, overcome obstacles, and adequately implement risk management and safety policies.

2) The results of interviews with OHS personnel from the four companies to determine both obstacles and solutions related to the implementation carried out



Source: researcher (2024)

Figure 3. Mind mapping of OHS worker's interview

The weaknesses in implementing occupational health and safety (OHS) and lack of supervision in companies due to low priority and commitment to OHS lead to weak implementation. PT. B and CV. D said the importance of safety culture and communication during CV. The lack of resources and experts is the main obstacle. CV. C argues that unrealistic planning and minimal communication between workers and the company contribute to the failure of OHS implementation. The core problem

identified through axial coding is the "effectiveness of occupational safety and health implementation in facing obstacles and improving safety culture." this theme emphasises that the effectiveness of OHS implementation depends on the company's ability to provide good coaching, education, and supervision through OHS personnel. The quality and experience of OHS personnel play a crucial role in shaping work culture and commitment from both workers and the company. Therefore, the success or failure of OHS implementation depends on various factors, including risk management and safety policies. The OHS personnel have an essential role as a communication link between workers and the company, ensuring smooth implementation of occupational health and safety and improving safety culture in the field.

3) The results of the questionnaire for workers from four companies were to find out the companies' construction safety management system documents for occupational health and safety as a process of implementing formative evaluation.

N	Valid	102	102	102	102	102
	Missing	0	0	0	0	0
Question a		A1	A2	A3	A4	A5
The mean result of question a		.67	.71	.60	.69	.64
Question b		B1	B2	B3	B4	B5
The mean result of question b		.66	.62	.66	.56	.60
Question c		C1	C2	C3	C4	C5
The mean result of question c		.62	.61	.60	.59	.56
Question d		D1	D2	D3	D4	D5
The mean result of question d		.66	.66	.65	.51	.59

Source: researcher (2024)

Table 1. Worker questionnaire

Based on the results of the worker questionnaire, it can be seen that the company's implementation is based on the company's document offerings:

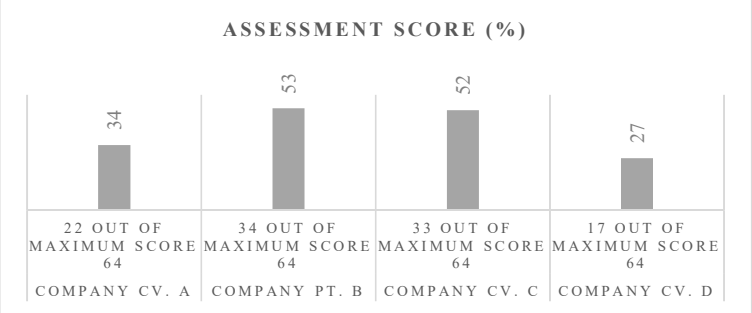
$$\bar{x} = \frac{1246}{2040} = 61.08\ \%$$

This evaluation was conducted at the construction work stage, with three companies achieving between 50% and 70% and one reaching 15%.

Results of summative evaluation

In conducting this evaluation, the researcher focused on the occupational safety and health management system document with the following explanation:

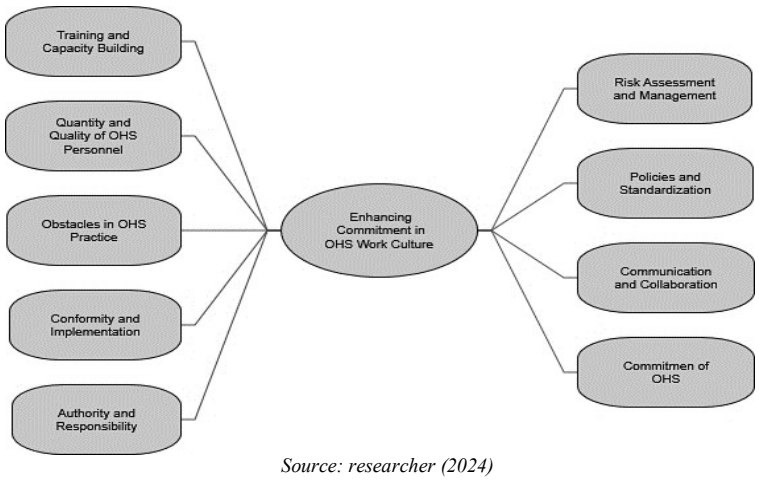
1) The results of observations in four (4) companies regarding the occupational health and safety management system (occupational safety and health management system) the companies have carried out are to be evaluated by researchers together with supervisory consultants.



Source: researcher (2024)

Chart 2. Assessment score of occupational safety and health management system document

2) The results of interviews with directors from the four companies to determine both the company's implementation and solutions related to the implementation carried out



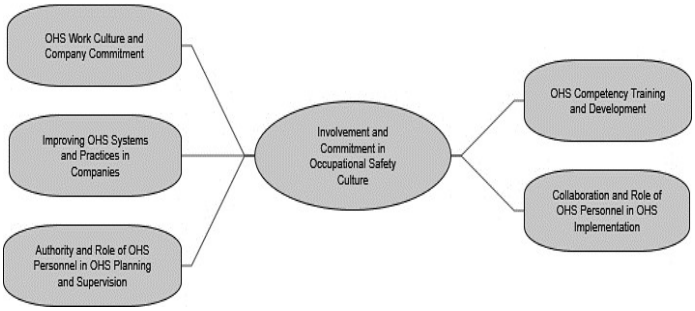
Source: researcher (2024)

Figure 4. Mind mapping of director interview

CV. C emphasises the importance of risk management and assessment, with the company striving to ensure a comprehensive understanding of the occupational health and safety implementation. Meanwhile, the director of CV. A has highlighted significant challenges in implementing occupational health and safety. PT. B. Has expressed the need for improved commitment from workers to understand the occupational health and safety culture, suggest internal training and better communication through mediums such as posters displaying the

occupational health and safety rules. CV. D also acknowledges room for improvement in implementing occupational health and safety, particularly concerning authority and responsibility. The theme "enhancing commitment in the occupational health and safety work culture" was selected for axial coding due to its encapsulation of critical elements in the occupational health and safety implementation, emphasising the vital role of commitment from all parties, especially top management, in creating a robust and enduring the occupational health and safety culture.

3) The results of interviews with OHS personnel from the four companies to determine both obstacles and solutions related to the implementation carried out



Source: researcher (2024)

Figure 5. Mind mapping of OHS workers interview

The company's implementation of OHS has been weakened by a lack of priority and commitment, resulting in inadequate supervision and a deficient OHS culture. PT. B and CV. D's OHS personnel recognise the critical importance of fostering a robust occupational health and safety culture and promoting work safety communication, highlighting the need for heightened awareness in these areas—CV. A has pointed out that the lack of occupational health and safety resources and experts is a significant factor hindering occupational health and safety implementation, leading to diminished effectiveness of the work safety program in the field. Furthermore, CV. C believes that unrealistic planning and inadequate communication between workers and the company have also contributed to the failure of the occupational health and safety implementation. Planning that does not align with field conditions and weak communication has made it challenging to carry out the occupational health and safety program effectively. The axial coding has identified the theme "involvement and commitment in occupational safety culture" as the central element for OHS success. This theme underscores the

importance of comprehensive involvement at all organisational levels and a commitment to work culture safety. This is crucial for enhancing the effectiveness of training, supervision, and overall occupational health and safety implementation in construction projects.

4) The questionnaire results were sent to workers in four companies to find out how the companies implemented an occupational safety and health management system as part of a summative evaluation process.

N	Valid	102	102	102	102	102
	Missing	0	0	0	0	0
Question a		A1	A2	A3	A4	A5
The mean result of question a		.46	.68	.77	.58	.60
Question b		B1	B2	B3	B4	B5
The mean result of question b		.51	.65	.52	.60	.61
Question c		C1	C2	C3	C4	C5
The mean result of question c		.60	.62	.69	.55	.47

Source: researcher (2024)

Table 2. Worker questionnaire

Based on the results of the worker questionnaire, it can be generally seen that the implementation carried out by the company is based on the initial level with 64 criteria for the implementation of occupational safety and health management system

$$\bar{x} = \frac{891}{1530} = 58.24\ \%$$

This evaluation was conducted at the construction work stage, with three companies achieving 70% to 80% and one reaching 25%.

Discussion

Based on the evaluation results, it can be seen that the effectiveness of the implementation of occupational safety and health is highly dependent on the company's ability to overcome obstacles, strengthen safety culture, and improve worker well-being. In other words, suppose a strong safety culture and effective communication are in place. In that case, they will be essential factors in facing occupational health and safety implementation challenges if the company can understand that combining elements such as management commitment, employee involvement, risk management, and strong safety policies can ensure that occupational health and safety is not just a formality but is well implemented in the field.

Researchers see the need for support for the occupational health and safety work culture through training, risk assessment, and the presence of adequate occupational health and safety experts. It will be more effective if supported by a strong management commitment. The involvement of all parties in construction projects plays a significant role in improving occupational safety, reducing the risk of accidents, and ensuring that occupational health and safety standards are adhered to as part of daily routines, creating a safe and sustainable work environment.

CONCLUSION AND SUGGESTIONS

Conclusion

Based on the research results sourced from CIPP's study of the results of interviews and questionnaires, it can be explained:

1.) To increase management commitment, an organisation must ensure that commitment to OHS starts from the top management level and that involvement in caring for OHS is mandatory at all levels. This can be achieved through specific management training on the importance of OHS and policies that integrate OHS into every aspect of the company's operations.
2.) Companies must be able to adopt a holistic approach to developing an OHS culture. This includes regular training, ongoing communication, and introducing best practices from other projects. Workers must also be actively involved in creating this culture through initiatives such as OHS working groups or feedback sessions.
3.) Strengthening occupational health and safety personnel requires increasing investment in developing their capacity, both in quantity and quality. This can be done by recruiting new personnel with high qualifications and providing advanced training to existing personnel.
4.) A continuous monitoring and evaluation system is needed to ensure that OHS policies and practices are implemented correctly and consistently. This system should include an assessment of management commitment, training effectiveness, and compliance with established standards.
5.) Companies must improve supervision and resource allocation to supervise OHS implementation by ensuring an effective mechanism to monitor compliance and

respond to violations. Adequate resource allocation and placement of expert personnel in the OHS field must also be considered to support effective implementation.

6.) It improved internal communication channels to ensure that safety information is communicated clearly and consistently to all employees. This also includes regular training and updates on new safety procedures and risks.
7.) Encouraging cross-departmental collaboration initiatives is needed to promote closer collaboration between OHS personnel and other departments. Workshops, regular meetings, and joint projects can strengthen this relationship. Better collaboration will ensure that OHS policies and practices are implemented more efficiently and effectively.
8.) Companies must continue to strive to integrate OHS into the company culture. This can be achieved through internal campaigns, employee involvement in safety initiatives, and a strong commitment from management to make safety a top priority. A strong OHS culture will support the authority and role of OHS personnel and improve overall workplace safety.

Suggestion

Based on the conclusions, the suggestions from this study are:

1.) Commitment and culture of occupational health and safety are core elements that can influence the effectiveness of all aspects of occupational health and safety implementation. Therefore, the public works, spatial planning, and land agency of the Kepulauan Riau Province need to approach local companies and invite them to cooperate in improving the commitment and culture of occupational health and safety for both the company and its employees through meetings or discussions that provide direction on the implementation of an occupational safety and health management system.
2.) The public works, spatial planning and land agency of the Kepulauan Riau Province, as the project owner, should have provided standard rules for the implementation of occupational health and safety in the project or location; this is useful for improving occupational health and safety work culture, simply by holding a toolbox meeting before and after work so that there is strengthening in the work culture towards increasing commitment in implementing the occupational health and safety.
3.) The public works, spatial planning and land agency of the Kepulauan Riau Province is deemed necessary to strengthen the applicable standards regarding occupational health

and safety in the implementation of work for each company and can even provide regulations on company compliance to conduct occupational safety and health management system audits from external parties at least once a year so that a commitment is created for construction service companies to strengthen occupational safety and health management system in their companies.

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