Stakeholder analysis Occupational Safety and Health (OSH) management system

A A Lamba, Y Latief and R Arifuddin*
Civil Department, Faculty of Engineering, University of Indonesia, Depok, Indonesia

*rosmariani_ar@yahoo.com

Abstract. Monitoring and Evaluation Results of Occupational Safety and Health (OSH) Management Systems in Ministry of Public Works and Housing (Indonesia) shows that the implementation of Government Regulation and Regulation of Indonesia Minister of Public Works and Housing, is still lacking of application and understanding, both to service users and service providers (planners, supervisors and implementers). In addition, the results of monitoring and evaluation also concluded that the lack of understanding duties and responsibilities related to OSH Systems in each party is still lacking. This study aims to analyse stakeholders in occupational safety and health management systems in the ministries of public works and housing, from identifying stakeholders, and knowing the processes of occupational safety and health management systems. The research is limited to some high-risk construction projects in the ministry of public works and housing. Data collected from the results of literature studies and related regulations in the implementation of construction projects. The result of this research is planning the involvement of these stakeholders in the process of occupational safety and health management system in the ministry of public works and housing.

1. Introduction
The low level of management monitoring of the Occupational Safety and Health Management System (OSHMS) can trigger various cases of work accidents in the Construction sector. there have been 12 work accidents in the span of 8 months (August 2017 to February 2018) in the construction sector, as in the case of rail pads Launcher gantry fell on a double-double track (DDT) project in Jatinegara and caused 4 deaths, and cases the collapse of the girder in the Pasuruan-Probolinggo toll road project which caused 1 death and 2 people were seriously injured [1]. Besides the accident case in construction sector, in 2010 there were 98,711 cases of workplace accidents, in 2011 there were 99,491 cases of workplace accidents, in 2012 there were 103,074 cases of workplace accidents, and in 2013 there were 103,285 cases of workplace accidents. In the 2015 Badan Penyelenggara Jaminan Sosial/ BPJS or Social Insurance Administration Organization.

Employment Annual Report, there were 110,285 cases of workplace accidents. This is a major concern given that every year there is an increase in cases of work accidents [2].

To minimize work accidents, an OSH management system is needed, consisting of various stakeholders who have their respective functions and roles in controlling the existing OSH program. There are various references for OSH management including referring to the Occupational Safety and Health Administration (OSHA) standards. In Indonesia, the Government has regulated occupational safety and health commonly referred to as OSH in the work environment through Government Regulation concerning the Implementation of the Occupational Health and Safety Management System.
(OSHMS). The developed OSHMS has referred to the standard procedure which is an international scale. Furthermore, this regulation becomes a policy reference for the Construction Services Sector Development Agency, in this case the Indonesia Ministry of Public Works and Public Housing, to develop a Construction Safety and Health Management System (OSHMS) policy.

Problems related to policies governing OSHMS in Indonesia are not only about the quality of the policy (policy) but also the extent to which the policy has been applied in construction work. The obligation to implement OSHMS is not only the responsibility of the service provider / contractor company, but also involves the service user (owner). The occupational safety law that places work safety responsibilities on project owners in construction projects has resulted in dramatic improvements in occupational safety planning and management efforts in the construction industry [3]. This has also been highlighted by the Indonesia Ministry Public Works and Public Housing for the successful implementation of OSHMS in its environment. Empirical data shows that the implementation of OSH policy in construction sector is still in low level.

![Monitoring and evaluation results of implementation of OSHMS policy in the Ministry of Public Works and Housing in 2017.](image)

Monitoring and Evaluation Results of OHSMS construction shows that the application of OSH regulations and standards in construction projects is still very far from the ideal standard. Implementation of Peraturan Pemerintah (PP) No. 50/2012 and Peraturan Menteri Pekerjaan Umum (PU) No. 05/ PRT/M/2014 still lacks application and understanding, both for service users and service providers (planners, supervisors and implementers). In addition, the results of this monitoring and evaluation also concluded that the lack of understanding of the duties and responsibilities related to OSHMS on each side was still lacking. An effective strategy is needed in encouraging the construction sector stakeholders to improve the OHS aspect within the Indonesia Ministry of Public Works and Housing.

In this study, we aim to demonstrate the value of combining the complementing stakeholder analysis (SA) and Occupational Safety and Health Management Systems (OSHMS) in Construction, to involve these stakeholders in the process of occupational safety and health management system in the ministry of public works and housing.
The objectives of this research are:

- To identify the Stakeholder in the occupational safety and health management system in the construction project in Indonesia Ministry of Public Works and Housing (Research Question 1)
- To planning the involvement of Stakeholders in the occupational safety and health management system in the construction project in Ministry of Public Works and Housing (Research Question 2)

1.1. **Stakeholder analysis**

Freeman acknowledged that the concept of stakeholders emerged through an international memorandum in 1963 at the Stanford Research Institute. In his landmark strategic management book, Freeman defined stakeholders as “those groups who can affect or is affected by the achievement of the firm’s objectives” This book is widely acknowledged for its ground breaking effort in SM research and globally cited by many. Subsequently, more empirical investigations in the construction field have been conducted based on the underlying theory and models [4].

Stakeholder analysis defines aspects of a social and natural phenomenon affected by a decision or action, identifies individuals, groups and organisations who are affected by, or can affect those parts of the phenomenon, and prioritises these individuals and groups for involvement in the decision-making process [5]. Furthermore, SA is “a methodology for gaining an understanding of a system, and for assessing the impact of changes to that system, by means of identifying the key stakeholders and assessing their respective interests” [6]. The main objective is to evaluate and understand the stakeholders from an organisation standpoint, or to determine their relevance to a project or policy, by asking questions about the interest, influence, position and other characteristics of stakeholders [7]. In addition, Stakeholder Analysis is a process of collecting and analysing qualitative information in a systematic way, to determine whose interests are relevant in the process of setting up and implementing a given policy or program [8].

There are three components of stakeholder analysis, namely Stakeholder Salience, Stakeholders' frame of reference, and Stakeholder networks. Stakeholder Salience is the degree of level that a manager gives in prioritizing the settlement of the claim problem. Factors of concern include cooperation and competition; cooperation and threats; ability to predict stakeholders and their strengths; interests and strengths of the stakeholders; strength, urgency and legitimacy as well as the expected output of stakeholder’s interest and cooperative relations. Stakeholders’ frame of reference is a stakeholder perspective on a world determined by experience, education, culture and family relationships. And Stakeholder networks are complex relationships among stakeholders.

1.2. **Occupational Safety and Health Management System (OSHMS) in Ministry of Public Works and Housing**

In the Ministry of Public Works and Housing Regulation, regulates the application of Construction OSHMS based on the stages of construction work within the Ministry of Public Works and Housing, starting from Pre Construction, Selection of Goods and Services Providers, Construction Implementation and Submission of Construction Works Final Results.

The application of the Construction OSHMS in the pre-construction stage, must contain a review of OSH aspects in feasibility studies, surveys and investigations. Then in the preparation of the Detailed Engineering Design (DED), it is mandatory to identify hazards, assess the risk of OSH and its control in determining the criteria for the design and selection of materials, implementation of construction, and operation and maintenance; and identify and analyse the level of OSH risk from the activities/projects to be implemented. In the pre-construction stage also requires the preparation of selection documents for goods / services providers containing potential hazards, types of hazards and identification of hazards of OSH Construction determined by PPK based on planning documents or from other sources; and evaluation criteria to assess the fulfilment of OSH Construction requirements including the criteria for evaluating the Safety Plan Documents.
The application of Construction OSHMS at the selection stage of the goods/services provider, contains documents containing the OSH Construction requirements which are part of the provisions of the technical requirements and provisions of the safety plan document evaluation criteria. Safety plan is part of the technical proposal in the bidding document, prepared by the service provider for the proposed bid, and will be evaluated technically for the OSH Construction targets and programs in order to control the type of OSH Construction hazard. Later this safety plan documents must be completed with a plan to implement OSH Construction for all stages of work during the Pre-Construction Meeting (PCM). Other requirements, namely for jobs with high hazard potential, must be required for recruitment of OSH Construction Experts and company OSHMS certificates. At the time of aanwijzing, hazard potential, type of hazard and identification of hazards OSH construction and OSH requirements must be explained.

The implementation of Construction OSHMS at the construction implementation stage is required to present the safety plan documents, and approved. The safety plan documents document becomes an inseparable document from the construction work contract document and becomes a reference for the implementation of the OSHMS in the construction implementation. Safety plan documents will be reviewed if there is a discrepancy in its application and/or changes occur and/or there is additional work. Documentation of the implementation of safety plan is made by service providers and reported on a regular basis (daily, weekly, monthly, quarterly), which is part of the work implementation report. The results of the performance evaluation of the reporting of safety plan implementation periodically must be carried out by service providers. In the event of a work accident, the service provider is obliged to make a work accident report to the PPK and the local Manpower Office at the latest 2 x 24 hours.

The implementation of the Construction OSHMS at the submission stage of the final work requires that the OSH Construction Expert and OSH Construction Officer be present to ensure that the OSH Construction procedure has been carried out during the testing and commissioning. Reports on the submission of final work results must contain the results of OSHMS performance, statistics on work-related accidents and diseases, as well as proposed improvements for future projects of the same kind.

2. Methodology
This research used a qualitative approach to obtain the formulation of Stakeholder Involvement in Occupational Safety and Health Management System. The research flow can be seen in figure 2.

![Figure 2. Flowchart of research.](image-url)
3. Result and discussion

3.1. Identify stakeholders in construction project in Ministry of Public Works and Housing (RQ 1)
According to PMBOK 6th Edition, 2017, The main output of the Identify Stakeholders process is the stakeholder register. This document contains information about identified stakeholders that includes Identification information (Name, organizational position, location and contact details, and role on the project), Assessment information (Major requirements, expectations, potential for influencing project outcomes, and the phase of the project life cycle where the stakeholder has the most influence or impact), and Stakeholder classification (Internal/external, impact/influence/power/interest). The stakeholder classification in this research are divided into two parts, consisting of:

- Internal Stakeholders in Ministry of Public Works and Housing
- External Stakeholders in Ministry of Public Works and Housing

3.2. Involvement of stakeholders in the OSHMS in the construction project in Ministry of Public Works and Housing (RQ 2)
Based on the analysis of the stakeholders, to plan the involvements amongs stakeholders on the OSHMS in construction project in Ministry of Public Works and Housing, a Responsibility Assignment Matrix can be seen in table 1.

| Table 1. Responsibility assignment matrix OSHMS construction project in Indonesia Ministry of Public Works and Housing. |
|---|---|---|---|---|---|---|---|
| Constructio n Phase | No. | OSHMS Activity | Ansaan Langsung Kepala Satuan Kerja (Kasatker) | Kepala Satuan Kerja (Kasatker) | Pejabat Pembuat Keputusan Kepala Unit Pekerjaan (PPK) | Kelompok Kerja Unit Pekerjaan Pengadaan Pokja ULP | Pejabat/Pejalania Hasil Pekerjaan (PPHP) | Planning and Designing Consultant | Supervision Consultant | OSH Expert/OS H Officer | Main Contractor |
| PLANNING AND DESIGN | 1 | Risk Assessment Construction work | C | A | A | R |
| 2 | Feasibility Study, Survey and Investigation must contain aspects of OSH Construction Technical Evaluation Criteria | C | C | A | R |
| 3 | Technical Evaluation Criteria (safety plan documents) Technical Evaluation Criteria (Construction Building Material Specification s) Technical Evaluation Criteria (Construction Equipment Specification s and Building Equipment) | A | R | I | I | C |
| 4 | A | R | I | I | C |
| 5 | A | R | I | I | C |
Table 1. Cont.

| Technical Evaluation Criteria | 6 | 7 | 8 | 9 |
|-------------------------------|---|---|---|---|
| (Construction Process / Activity Specifications) Technical Evaluation Criteria | A | R | I | I | C |
| (Specifications of Construction Methods / Implementation Methods / Working Methods) Technical Evaluation Criteria | A | R | I | I | C |
| (Construction Job Specifications) Initial Investigation of Job Locations | C | C | A |
| | C | A | C | R | 1 |
| | C | A | C | R | C | 1 |
| | C | A | C | R | C | 1 |
| | C | A | C | R | C | 1 |
| | C | A | C | R | C | 1 |
| | C | A | C | R | 1 |

SELECTION OF GOODS AND SERVICE PROVIDERS

| Technical Evaluation Criteria | 6 | 7 | 8 | 9 |
|-------------------------------|---|---|---|---|
| (Construction Equipment Specifications and Building Equipment) Technical Evaluation | C | A | C | R | C | 1 |
| (Construction Process / Activity Specifications) Technical Evaluation (Specification of Construction Method / Implementation Method / Working Method) Technical Evaluation (Construction Job Position Specifications) | C | A | C | R | C | 1 |
Table 1. Cont.

| No | Description                                                                                                                                  | C | A | C | R | I |
|----|----------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|
| 1  | Analysis of the price to be contracted Discussion of OSH Construction Plan at the contract implementation meeting Change Core Personnel and / or equipment to be used Provide Health Staff, First Aid Facilities on Accidents, and Ambulance Services at any time Appoint a Work Safety Officer Document the results of the implementation of the OSH Construction Program made by service providers and reported to PPK | I | I | A | I | I | C | R |
| 2  | CONSTRUCTION Updating the OSH Construction Program In the event of a work accident, the Main Contractor must make a work accident report to the PPK, the local Manpower Office, no later than 2 x 24 hours Facilitating safety training for all construction workers Creating a Risk Register for jobs that have high hazard potential and continue to update them according to conditions in the field | I | C | A | I | C | R |
| 3  | | | | | | | |

7
Table 1. Cont.

|   | Make and explain the Construction K3 Program for Subcontractors, starting from the planning, survey, and work procedures to be carried out by the subcontractor. Make a list of equipment and materials that will be used in construction work, and have passed the feasibility test. Commissioning Test, including Related OSH Construction |
|---|---|
| 10 | C A R |

|   | Checking reports related to Work Accidents, OSH Construction, and Achievement of OSH Construction Objectives and Programs |
|---|---|
| 11 | I I C A C C R |

**4. Conclusion**

Based on the construction phase that applies at the Ministry of PUPR, the SMK3 Process consists of several stages, namely Planning and Designing, Selection of Goods and Services Providers, construction, and acceptance of the final work results.

From the RAM/RACI stakeholder analysis, it is known that the Atasan Langsung Kepala Satuan Kerja (Atasan Kasatker), Kepala Satuan Kerja (Kasatker), Pejabat Pembuat Komitmen (PPK), Unit Layanan Pengadaan (Pokja ULP), Pejabat Penerima Hasil Pekerjaan (PPHP), Planning and Design Consultant, Main Contractor, Supervision Consultant, are the most active party to achieve the objectives of OSHMS performance in the Ministry of PUPR.

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