Identification of institutional safety factors affecting safety culture in construction sector in Indonesia

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Abstract. The construction sector in Indonesia is faced with the fact that the high number of work accidents. The number of work accidents in Indonesia is among the highest in the ASEAN region. efforts that have been carried out so far in the form of making and updating legislation, technical standards, supervision, guidance, counseling and outreach to increase awareness of company leaders and workers in general about the benefits of Occupational Health and Safety (OHS) implementation, are not complete if the coordination of each stakeholder institution (stakeholders) are not implemented properly so that everything runs individually according to their respective interests. The purpose of this study is to identify current OHS institutional conditions in the construction sector. The methodology used is content and construct validation, survey respondents were processed using the Relative Important Index Analysis. the results of this study explain that the realization of a culture of occupational safety and health in Indonesia (0,968) Understanding of occupational safety and health is embedded from an early age to higher education (0,914) Inadequate OHSE HR Competencies (0,856) and Ministry of labor (0,919) as the most dominant indicator in shaping the institutional system in the construction sector in Indonesia

Keywords: Safety Culture, Institutional Safety, Construction Sector

1. Introduction

The construction sector has a large contribution to the economy. The role of the construction sector can be seen from the potential employment created [1]. In 2009 alone, according to data from the Ministry of Manpower and Transmigration showed that around 4.5 million workers in Indonesia worked in the construction sector, covering 7-8% of the total workforce in all sectors [2]. Data from 2015 showed that the number of workers in the construction sector had even reached 7.72 million people.

The Ministry of Manpower and Transmigration recorded 86,693 work accident cases in Indonesia, where 31.9% occurred in the construction sector, 31.6% occurred in the manufacturing sector, 9.3% in the transportation sector, 3.6% in the forestry sector, 2.6% in the mining sector, and 20% in other sectors [3]. Since the enactment of Law No. 22 of 1999 which was later amended by Law No. 32 of 2004 and Government Regulation No. 25 of 2000 which gives full operational authority to the regions,
in its implementation in the field various interpretations emerge which result in disruption of the implementation of OHS supervision as referred to in the spirit of Work Safety Law No. 1 of 1970. Besides the efforts that have been carried out so far in the form of making and updating legislation, technical standards, supervision, guidance, counselling and outreach to raise awareness of company leaders and workers in general about the benefits of OHS implementation, is not complete if the coordination of each institution stakeholders are not implemented properly so that everything runs individually according to their respective interests. But to make integrated conditions not easy, it is necessary to have the right institution implementing OHS in the construction sector. OHS Institution is an independent, non-governmental national private organization that is engaged in the management of Occupational Health and Safety (OHS), in the form of a company or business entity in Indonesia. The existing OHS institutions in Indonesia today are P2K3 (Committee for Occupational Safety and Health), the National Occupational Safety and Health Board (DK3N), and the National Occupational Safety and Health Services Company (PJK3). OHS implementation is carried out by multi organizations / agencies because of the many activities covering various sectors. DK3N as an extra-structural tripartite institution has initiated the preparation of the National OHS Vision, Mission, Policy, Strategy and Work Program, especially for the 2012-2016 period, with target indicators until 2015, companies in Indonesia have implemented OHS. In terms of the vision compiled by DK3N to make Safety culture in Indonesia a very appropriate thing, because 80% of work accidents are triggered by unsafe behaviour from workers. Unsafe behaviour is caused by safety culture which is still very bad of construction workers. Therefore, the current condition and problems of OHS in the construction sector in Indonesia need to be analysed to find solutions on how to reduce the gap between goals and outcomes so that institutional performance improves. Institutional factors that influence the development of safety culture need to be identified [4]. Institutional development to bring up the right institutional structural model, in order to build a Safety culture also needs to be done. Where the model will also be a workflow for the implementation of the National Vision, Mission, Policy, Strategy and Work Safety Program. The model can be developed after the institutions that become institutional stakeholders are identified, so that the vision to make OHS as a culture in Indonesia can be realized.

2. Research Objectives
The objectives of this study to identify current OHS institutional conditions in the construction sector.

3. Literature Review
Institutions or organizations need to be established as a centre for integrated community learning and must have a clear organizational structure that is needed because the organizational structure is a formal structure of the relationship of duties and authority that controls how each individual collaborates and manages all available resources to achieve the goals of the organization [5]. According [6] Institutional Development can be formulated as planning, structuring and guidance of new or reorganized organizations that bring about changes in values, functions, physical technologies, and / or social, Establishing, developing and protecting normative relationships and new patterns of action; and · obtaining support and completeness in that environment. Institution contains the principle of hierarchy, so that in practice there are local government institutions and central government institutions [7] Local institution is an extension of the central institution in providing access to government services and development in the region. The position of local government institutions is said to be strategic because local institutions are spearheading to foster community participation in national and regional development processes.

[8] detailed institutional variables including:
1. Leadership refers to the group of people who are actively involved in the formulation of the doctrines and programs of the institution and who direct the operations and relationships with the environment.

2. Doctrine is formulated as a specification of the values, objectives, and operational methods that underlie social action.

3. The program refers to certain actions relating to the implementation of the functions and services that are the output of the institution.

4. Resources are inputs in the form of financial, physical, human, technological, and information from the institution. These resources can be grouped into: economic resources, information, status, strength, authority, validity, support.

5. The internal structure is formulated as the structure and processes carried out for the work of the institution and for its maintenance.

While the related variables include:

1. Enabling links, with organizations and social groups that control the allocation of authority and resources.

2. Functional links, namely with organizations that carry out functions and services that are complementary in the sense of production, which provide inputs, and which use the outputs of these institutions.

3. Normative links, namely with institutions that include norms and values (positive or negative) that are relevant to the doctrine and program of the institution.

4. Linkages are scattered, with elements in society that cannot be clearly identified by membership in formal organizations.

4. Methodology

According to [9] in analysing policy institutions often they face complexity, the development of a framework is the most common form of theoretical analysis. The framework identifies common elements and relationships among these elements that need to be considered for institutional analysis and they govern diagnostic and prescriptive investigations. Some policy situations may be simple, but most situations involve knowledge from different perspectives, then activities are carried out at various levels, and a number of given policy situations may overlap with other policy situations, so that activities in one situation affect activities in other situations. In order to understand what actually happens in the policy arena, it is important to combine input from various disciplines, several levels of activity, and several policy situations. This is one reason for developing the Institutional Analysis and Development Framework (IAD Framework), which is to provide a common basis for integrating a variety of policy elements and frameworks for different policy analysts. Through the IAD framework created by Ostrom states that participants in the circumstances surrounding it, together with exogenous factors, will influence their behaviour patterns which then produce an impact or performance. Furthermore, a reciprocal relationship can occur where outcomes will affect participants, action situations, and potentially influence exogenous factors. Evaluation criteria are used to assess system performance by examining patterns of interaction and results [10].

5. Result and Discussion

The survey was conducted by structured interview and began in October 2018. The survey was conducted repeatedly until an agreement was reached between resource persons regarding the elements of the research variables. The total time needed in the phase 1 survey is two weeks. Where the results of the Phase 1 survey are research variables that have been validated.

The results of the Delphi phase 2 survey are the ranking of each research variable based on the Relative Importance Index (RII), as follows:
Table 1 Ranking of Program Objective

| Code | Variables                                                                 | RII  | Ranking |
|------|---------------------------------------------------------------------------|------|---------|
| X1.1 | the realization of a culture of occupational safety and health in Indonesia | 0.968| 1       |
| X1.2 | improve workforce competency and competitiveness in the field of safety    | 0.928| 2       |
| X1.3 | increase the independence of the business world in implementing work safety | 0.905| 3       |
| X1.4 | improve synergetic coordination among stakeholders in the field of work safety | 0.901| 4       |

In the Program Objectives Factors, of the 4 variables given the assessment, which gets the top ranking, namely the realization of a culture of Occupational Safety and Health in Indonesia (X1.1).

Table 2 Ranking of Benchmarks for Assessing Each Goal Factors

| Code  | Variables                                                                 | RII  | Ranking |
|-------|---------------------------------------------------------------------------|------|---------|
| X2.8  | Understanding of occupational safety and health is embedded from an early age to higher education | 0.914| 1       |
| X2.1  | The commitment of employers and workers in the field of occupational safety and health increases | 0.910| 2       |
| X2.2  | The role and function of all sectors in the implementation of occupational safety and health is increasing | 0.910| 3       |
| X2.3  | The ability, understanding, attitude and behavior of the occupational safety and health culture of employers and workers increase | 0.910| 4       |
| X2.9  | The role of professional organizations, universities, practitioners and other components of society in increasing understanding, abilities, attitudes, cultural behavior in occupational safety and health increases | 0.905| 5       |
| X2.4  | The application of occupational safety and health through risk management and management of risk behaviors increases | 0.905| 6       |
| X2.7  | Implementation of an integrated Occupational Safety and Health information system increases | 0.887| 7       |
| X2.6  | The application of occupational safety and health culture in micro, small and medium enterprises is increasing | 0.883| 8       |
| X2.5  | The implementation of the occupational safety and health assessment system (SMK3 Audit) in the business world is increasing | 0.878| 9       |
| X2.10 | The integration of occupational safety and health in all fields of scientific discipline is increasing | 0.865| 10      |

In Benchmarks for Assessing Each Goal Factors, out of the 10 variables that are given an assessment, those who get top rankings are Understanding of occupational safety and health embedded from early age to tertiary education (X2.8).
Table 3 Ranking of Main Obstacle Factors

| Code | Variables                                      | RII  | Ranking |
|------|------------------------------------------------|------|---------|
| X3.5 | Inadequate OHSE HR Competencies                | 0.856| 1       |
| X3.4 | Limited source of funding                      | 0.833| 2       |
| X3.3 | Safety Performance Evaluation System that has not been effective | 0.802| 3       |
| X3.2 | Unclear authority                              | 0.797| 4       |
| X3.1 | Weak leadership                                | 0.793| 5       |
| X3.6 | Evaluation of HSE competence that is not clear | 0.743| 6       |
| X3.7 | OHSE targets that are not yet effective        | 0.743| 7       |

In the Main Obstacle Factors (Table 3), the variable that gets the highest rank is the OHS HR Competency that has not been sufficient (X3.5). Whereas in Institutions Involved in Program Implementation Factors (Table 4) of the 20 variables that were given an assessment, the top ranking was the Ministry of Manpower (X4.1).

Table 4 Ranking of Institutions Involved in Program Implementation Factors

| Code | Variables                                      | RII  | Ranking |
|------|------------------------------------------------|------|---------|
| X4.1 | Ministry of labor                              | 0.919| 1       |
| X4.17| OHS institutions in the company                 | 0.901| 2       |
| X4.18| Project organization                           | 0.896| 3       |
| X4.15| Construction services development institute     | 0.892| 4       |
| X4.16| Construction Company                           | 0.892| 5       |
| X4.2 | National OHS Board                             | 0.892| 6       |
| X4.8 | Ministry of Public Works and Public Housing    | 0.887| 7       |
| X4.3 | Regional OHS Council                           | 0.869| 8       |
| X4.7 | OHS Center                                     | 0.869| 9       |
| X4.4 | OHS Service Company                            | 0.869| 10      |
| X4.12| Professional Association                       | 0.856| 11      |
| X4.9 | Local government                               | 0.851| 12      |
| X4.5 | BPJS Employment                                | 0.847| 13      |
| X4.13| Employers' Association                         | 0.842| 14      |
| X4.19| National Professional Certification Board       | 0.838| 15      |
| X4.20| National Standardization Agency                | 0.833| 16      |
| X4.6 | Health BPJS                                    | 0.833| 17      |
| X4.11| Academic Community                             | 0.820| 18      |
| X4.14| Labor union                                    | 0.802| 19      |
| X4.10| Non-governmental organization                  | 0.734| 20      |

The Institutional Relationship with Safety Culture lies in Safety Related Interaction, which in the institutional context lies in the patterns of interaction between participants which are coordinating, collaborating, and synergizing related to the application of safety management system [11]. Of the three relevant technical agencies, namely the Ministry of Manpower, the Ministry of Manpower and Transmigration and the Regional Government, the current coordination can be described as follows:

1. Inter sectoral coordination is still weak:

Minister for Public Works and Human Settlements in carrying out the implementation of safety management system supervision in a coordinated manner with labour inspectors at the Ministry of
Manpower as mandated in PP No.50 of 2012 concerning the Implementation of SMK3 Article 19 paragraph (2) is still in the form of technical guidance.

2. Coordination of ministries / institutions at the central and regional levels is still lacking:

Coordination of the implementation of safety management system supervision from the region to the centre runs independently because the Head of the Provincial Regional Office is located below and is responsible to the Governor through the Provincial Secretary in accordance with PP No.18 of 2016 Article 13 paragraph (2).

![Figure 1. Existing Condition of Institutional Safety in Construction Sector](image-url)
6. Conclusion

1. As mandated by Law No.1 of 1970, the Minister of Manpower sets national policies in the field of K3, but uniform and harmonious implementation throughout Indonesia has not yet been realized.

2. As mandated by PP No.50 of 2012, the Minister of PUPR as a sector supervisor carries out national OHS policy, but the implementation of SMK3 supervision in a coordinated manner with labour inspectors at the Ministry of Manpower as mandated in PP No.50 of 2012 concerning Implementation of SMK3 Article 19 paragraph (2) still limited.

3. The OHS reporting flow from the regions to the centre has not yet been integrated. Coordination of the implementation of SMK3 supervision from the region to the centre runs independently because the Head of the Provincial Regional Office is located below and is responsible to the Governor through the Provincial Secretary in accordance with PP No.18 of 2016 Article 13 paragraph (2).

Acknowledgments

The research was funded by the PDUPT scheme for Fiscal Year 2019 No: NKB-1675/UN2.R3.1/HKP.05.00/2019 with funding source: Budget Implementation Schedule (DIPA) Kemenristekdikti No : I/EI/KP.PTNBH/2019 and No : 234/PKS/R/UI/2019, March 29th 2019.

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