Improvement Capacity of Building Worker by Occupational Health and Safety (K3) Training in Tlogo Village

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Abstract. Gotong royong (mutual cooperation) is one of the local wisdom that reflects the noble values of achieving common goals. Some of the activities carried out in gotong royong include; the construction of places of worship, irrigation booths, village roads, and other public facilities. Sub village (Dusun) Tlogo Kebonagung Imogiri has 5 RTs with 15 residents working as carpenters. With a voluntary spirit and a common goal, gotong royong often ignores aspects of occupational safety and health (K3). Therefore, it is necessary to seek a way to improve the quality of gotong royong through education about the importance of occupational safety and health at work. The proposed solution to overcome this problem is to conduct Occupational Safety and Health (K3) training. The method applied to this capacity-building scheme is brainstorming and lesson learning (the practice of experiences) on a construction project planned by residents. The technique for managing activities that is applied is Focus Group Discussion (FGD). Based on the method and stages of the program, this community development on capacity building is targeted to have funding in the form of publications in journals/proceedings, mass media, and social media.

Keywords: occupational health, safety, protection, work

1 Introduction

Gotong royong is one of the local wisdom that is still commonly found today. This is considered because it is an ancestral cultural heritage that has become the character of the Indonesian nation [3]. In gotong royong, there are noble values that reflect the values of togetherness, tolerance, work ethic, and mutual help. The value of mutual help in gotong royong is reflected in the voluntary element of the community in carrying out their duties when gotong royong takes place. The character of gotong royong can be seen in several activities including; the construction of places of worship, irrigation booths, village roads, and other public facilities. By working together, the community is able to lighten the work and save time in completing a job. Because of these benefits, gotong royong is often carried out by various levels of society, ranging from rural to urban communities.

One of the spearheads of gotong royong in the community, especially in terms of carrying out physical work, is the local craftsman. The ability of carpenters (profesison of carpenters) among the communities of Padukuhan Tlogo Kebon Agung is self-taught and passed down from generation to generation. Based on the data population in Kebonagung, the population in Tlogo hamlet is 803 people with 272 families (https://kebonagung-bantul.desa.id/first/artikel/312). Of the total number of residents, there are at least 20-25 residents who work as carpenters, both working as commuters (working in Yogyakarta) and

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around it. From the development planning in Padukuhan, the closest activity is working together in revitalizing the compost cages. Reflecting on the previous gotong royong activities, namely when casting village roads, some aspects are often not considered so that in the long run it can reduce the quality of health and gotong royong itself. The aspect that has received less attention is Occupational Safety and Health (K3), including in this case the use of Personal Protective Equipment (PPE).

The minimization of socialization and counseling about PPE causes minimum attention from residents on occupational safety and health (K3) when gotong royong takes place. In a study conducted on OSH, it was found that the problem of understanding and urgency of OSH was still minimal among the community because there was no counseling from related parties about OSH [7]. This condition is certainly very ironic in which every year, the Ministry of Manpower issues regulations regarding the K3 theme of the national month designed from 2015 to 2022, as follows;

**Table 1. Manpower issues regulations.**

<table>
<thead>
<tr>
<th>Year</th>
<th>The theme of K3 Month</th>
</tr>
</thead>
<tbody>
<tr>
<td>2022</td>
<td>Implementing K3 Culture in Every Business Activity to Support Workforce Protection in the Digitalization Era</td>
</tr>
<tr>
<td>2021</td>
<td>Strengthening of Human Resources Excellent and Cultured K3 in All Business Sectors</td>
</tr>
<tr>
<td>2020</td>
<td>Optimizing the Independence of K3 Cultured Communities in the Information Technology-Based Industrial Revolution Era 4.0.</td>
</tr>
<tr>
<td>2019</td>
<td>Realizing the Independence of Indonesian Communities with a Culture of Occupational Safety and Health (K3) to Support National Economic Stability</td>
</tr>
<tr>
<td>2018</td>
<td>Through a Culture of Occupational Safety and Health (K3), We Form a Nation with Character</td>
</tr>
<tr>
<td>2017</td>
<td>With K3 Culture, We Improve Human Life Quality Toward a Safe, Healthy, and Productive Society.</td>
</tr>
<tr>
<td>2016</td>
<td>Improving Culture To Drive Productivity and 2016 Competitiveness In The International Market</td>
</tr>
<tr>
<td>2015</td>
<td>Through the Implementation of SMK3, We Realize Indonesia with a Culture of K3 in Facing Free Trade</td>
</tr>
</tbody>
</table>

Resouces: Agus M, andiballado.com

Whereas in building construction projects, occupational safety and health are a priority that must be considered. Ignoring occupational safety and health can have fatal consequences, such as an accident at work/gotong royong. According to Manlian and Rendy [4], in their research on identifying the causes of work accident risks in building construction activities, the two highest human errors cause work accidents, namely; first, the construction workers did not wear personal protective equipment, the two workers made minor mistakes such as falling, slipping, tripping, etc.

As a society that still upholds its noble values, the K3 context in the community's tradition of various efforts before carrying out activities can be seen in the *slametan* or religious ritual.
process, which means being free from unwanted incidents. The *slametan* ceremony is a tradition that is considered to keep away from disaster. The *slametan* is a universal concept that has a different name in every place. This is due to weak self-awareness in the presence of forces outside human beings [4]. However, this noble art needs to be balanced with understanding and technical knowledge (K3).

![Figure. 1. Revitalization plan of community compost cages](image)

Based on the above, it is necessary to map out the offers of solutions to the problems that have been described, especially to minimize work accidents that may occur during *gotong royong* activities. It is necessary to hold occupational safety and health (K3) training. A good understanding of OSH and its implementation in *gotong royong* in building public facilities is an effort to minimize the risk of work accidents that may hinder the smooth running of construction projects. If a work accident occurs during the implementation of a construction project, the use of costs, time, and energy in carrying out the project until the construction of a building will be in vain [8].

**Table 2. Problems, Solutions, and Achievements Target**

<table>
<thead>
<tr>
<th>Scope</th>
<th>Problems</th>
<th>Solution</th>
<th>Result Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worker Safety and</td>
<td>The minimized HR understanding of the importance of OSH in carrying</td>
<td>Conduct introduction, socialization, and basic OSH training for residents who will carry out <em>gotong royong</em> in the construction of public facilities</td>
<td>Increased understanding of K3 residents - Implementation of K3 during the implementation of <em>gotong royong</em> in the construction of public facilities</td>
</tr>
<tr>
<td>Health</td>
<td>out the construction of public facilities in <em>gotong royong</em></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Islam as Rahmatan Lil A'lamin has also given signs that no calamity will befall a person except with Allah's permission and whoever believes in Allah, He will surely guide his heart. And Allah knows everything (At Taghabun (64): 11, 940). Some of the benefits of a good understanding of K3 for the course of building construction, especially for workers are [10]:

a. Protecting workers for their rights and safety in carrying out their work for the welfare of life and improving performance.

b. Ensuring the safety of others who are in the workplace.

c. Maintaining and using production resources safely and efficiently.

From discussions with community leaders and Padukuhan Tlogo parties, problems were found that needed to be solved, and then solutions were found to handle them up to the targets.
of each solution. The following is a matrix of problems, solutions, and targets that will be pursued in this service:

2 Methodology

The KKN-PPM program was carried out together with students as a Field Team with the target of residents who work as builders in Tlogo Kebonagung Kapanewon Imogiri, Bantul Regency. This program was intended to provide a basis for training in construction management and K3, as well as assistance with development planning. The implementation of method used is as follows:

2.1 Preparation phase

The purpose of this activity was to find out the real conditions of the community and local craftsmen. This preparatory stage is carried out through the initial coordination stages and data collection surveys. For this reason, the TEAM compiled a list of questions to be submitted by respondents. After that, the team went to the field (survey) and explored the obstacles or problems faced by partners through question and answer with community leaders (Padukuhan, RT, and worker builders).

2.2 Implementation Phase

- **Community Meeting (Socialization)**
  At this stage, the Team held meetings with community leaders and residents to stay in touch and convey the aims and objectives of the activities to be carried out. The target of this meeting is to have a common vision and mission so that the program can be accepted and supported by the community.

- **Technology Preparation and PPE Implementation.**
  Based on the results of the socialization above, the team will formulate PPE needs related to K3 as a demonstration/practice. For this reason, efforts are made to demonstrate technology that can be directly understood and implemented in society.

- **K3 training**
  K3 training aims to reduce the risk of work accidents when gotong royong is carried out. Three main factors cause work accidents, namely the human factor, the type of work and the method of implementation, and environmental factors.

- **Focus group discussion (FGD) and Padukuhan Program Planning Simulation.**
  Armed with the questions that had been prepared previously, based on the stages that had been carried out previously, an FGD was held to finalize the park development plan. The result of this stage is in the form of a Work Breakdown Structure (WBS) matrix. This document is document that describes a hierarchy of project component arrangements. The scope of the project is broken down into smaller pieces and in detail. This document has the following functions:
  - Defining the activities to be implemented
  - Identifying the skills needed for each type of activity
  - Being a basis for forming a project team
  - Being a basis for estimation, scheduling, and project control
2.3 Monitoring and Evaluation Phase

Monitoring as an effort to improve programs and feedback on programs that are already running is carried out by filling in questionnaires from the organizers and direct discussions with the hamlet (dukuh) parties, especially concerning presentation material and the practice of using PPE in the community.

3 Results and Discussion

The KKN-PPM program was carried out together with students as a Field Team with the target of residents who work as masons in the Padukuhan Bonggalan Srigading Kapanewon Sanden, Bantul Regency. This service seeks to provide a basis for training in construction management and K3, as well as assistance with development planning. The implementation method used is as follows:

3.1 Survey and Mapping

Padukuhan Tlogo Kebonagung Imogiri Bantul has 5 RTs (1,2,3,4,5) with a total of 272 families. From the data mapping process carried out with community leaders, housewives, and young carpenters, around 16 people. The distribution of the masonry profession in the RT areas is as follows:

<table>
<thead>
<tr>
<th>NO</th>
<th>RT</th>
<th>Number of Workers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>RT 1</td>
<td>4</td>
</tr>
<tr>
<td>2.</td>
<td>RT 2</td>
<td>3</td>
</tr>
<tr>
<td>3.</td>
<td>RT 3</td>
<td>1</td>
</tr>
<tr>
<td>4.</td>
<td>RT 4</td>
<td>7</td>
</tr>
<tr>
<td>5.</td>
<td>RT 5</td>
<td>1</td>
</tr>
</tbody>
</table>

3.2 Identification of Mapping

At this stage, the team coordinated with the limited figures above related to K3 problems among residents and builders. Identification results found several points as follows:

1. The profession of a carpenter is self-taught and passed down from generation to generation and some work around the village/Bantul as well as in Jogya.
2. Formal carpentry training activities and regulations related to carpentry are very rare or even never encountered.
3. Lack of time available for carpenters to be able to gather with residents/families except only Sundays (holidays).
4. *Gotong royong* activities related to the construction of public facilities do not use PPE. After the data is identified, the TIM coordinates to determine the program socialization schedule for the community, the training design related to material boundaries, the discussion model that is carried out, and the schedule for implementing training activities with technology related to PPE.
3.3 Implementation Phase

3.3.1 Community Meeting (Socialization)

At this stage, the Team held meetings with community leaders and residents to stay in touch and convey the aims and objectives of the activities to be carried out. The target of this meeting is that the program is accepted by the community and there is program support and commitment. The community also conveyed information on gotong royong activities which were usually carried out in the construction of ditches, padukuhan (hamlet) roads, and renovation of the group's cages to become compost processing sites. This meeting was also agreed on a schedule of training activities, namely February 12, 2023, at the Midday Prayer at the Padukuhan Posyandu

3.3.2 Preparing of APD Technology

Based on the information above, the application of technology related to OSH is prepared as a demonstration/practice to the community as implementation in society. The PPE technology as a PPE demonstration is related to gotong royong activities in the community, including:
- Helmet with 5 colors namely; green, white, red, yellow, and blue;
- Wearpack (work clothes);
- Boots;
- Masks;
- Gloves.
3.3.3 FGD and Training K3

K3 basic training is carried out by presenting material to the audience through the Risk Management Approach. The presentation was held for about 15 minutes on risks and their measurements, causes of work accidents, potential accidents and impacts, and efforts to reduce impacts.

After the presentation, there was dialogue and sharing of experiences in the field. Participants are invited to identify and map the risks and potential accidents in the field, including for certain cases or based on field findings. The examples of identification and mapping are as follows;

<table>
<thead>
<tr>
<th>Working Space</th>
<th>Potential Accident</th>
<th>Impact</th>
<th>APD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installation of Floor Plate Formwork, Column Beams (High Cast Work)</td>
<td>Fall from a height</td>
<td>Falls and injuries from broken bones or abrasions</td>
<td>Wearpacks, Helmets, Straps/Hangers, Boots, Gloves, Masks</td>
</tr>
<tr>
<td></td>
<td>Overwritten formwork</td>
<td>Bruises, breathing problems, splashes of concrete, sprains, pinched nerves, broken fingers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hit by a hammer</td>
<td>Bruised to fractured bones.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mipped into the middle of the beam/column</td>
<td>Injury and tetanus</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Scratched edge of the formwork</td>
<td>Minor injuries to tetanus</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pierced formwork</td>
<td>Injuries to tetanus</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pierced Nail</td>
<td>Minor injuries to tetanus</td>
<td></td>
</tr>
</tbody>
</table>

From the identification and mapping above, participants can map the main factors that cause work accidents originating from human factors, types of work, and implementation methods, as well as environmental factors.
3.4 Monitoring and Evaluations

Monitoring as an effort to improve programs and feedback on programs that are already running is carried out by filling in questionnaires from the organizers and direct discussions with the hamlet (dukuh) parties, especially concerning presentation material and the practice of using PPE in the community.

4 Conclusions

Occupational Safety and Health (K3) is a statutory mandate that needs to be disseminated to the public, especially for the masonry profession. K3 activities that are socialization and training in nature are very rarely conducted in the community/society. Hence, this training is very beneficial for the community. This training is also very implementable and intersects with the daily life of the mason profession. From the results of monitoring and evaluation with the community, it is suggested to organize similar training activities that residents can attend and are full of practice.

Acknowledgments

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References

[1]. Al Qur’an dan Terjemahannya, 1971. At Taghabun (64) : 11
[7]. Muhammad Sabiq Ridlo, Upaya Peningkatan Budaya K3 Pada Masyarakat Desa Sambi Kabupaten Boyolali
[9]. Profile Padukuhan Bonggalan Srigading Sanden Bantul