



## Socialization and Education on Electrical Occupational Safety for Community Members and the People's Labor Union in Yogyakarta

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### ABSTRACT

*The high rate of occupational accidents caused by electrical hazards, particularly in the informal sector, indicates the need to improve occupational safety education. This community service activity aims to enhance the knowledge and skills of community members and workers affiliated with the People's Labor Union (SERBUK) Yogyakarta regarding electrical hazards, the use of personal protective equipment (PPE), and emergency response procedures. The implementation methods included educational sessions, interactive discussions, and fire evacuation simulations. The activity was conducted on August 28, 2025, and attended by 30 participants. The evaluation results showed a significant improvement in participants' understanding of electrical occupational health and safety. This activity successfully fostered collective awareness of the importance of a safety culture and the sustainability of occupational safety education.*

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## A. INTRODUCTION

Occupational Safety and Health (OSH) is a fundamental pillar in the labor system aimed at ensuring the safety, health, and well-being of workers in carrying out their occupational activities. Among various high-risk sectors, the electrical field holds a strategic position due to its potential hazards, including electric shocks, short circuits, fires, and explosions that may threaten human life (ILO, 2019; WHO, 2021).

Based on data from the Indonesian Ministry of Manpower (2023), more than 300 cases of occupational accidents related to electrical hazards are reported annually, particularly in the construction, installation, and building maintenance sectors. This number is believed to be higher, as most incidents in the informal sector are not officially recorded (Ministry of Manpower of the Republic of Indonesia, 2015; Wahyudi & Rahman, 2021).

One of the main challenges in implementing electrical OSH is the low level of workers' understanding of electrical hazard risks and preventive procedures. This issue is particularly evident among informal sector workers, who generally lack access to formal training, standard personal protective equipment (PPE), and documented safe work procedures (ILO, 2020; Hasle & Limborg, 2006). In Yogyakarta and its surrounding areas, there is a worker community affiliated with the People's Labor Union (SERBUK), the



majority of whom work in the informal electrical sector and have limited educational backgrounds as well as OSH training.

The limited implementation of occupational safety regulations, such as Law No. 1 of 1970 concerning Occupational Safety and Ministerial Regulation No. 12 of 2015 concerning Electrical OSH, has become a serious issue, as these regulations have not fully reached informal workers. In fact, these regulations mandate the implementation of safe work standards, the use of PPE, and the provision of safety education for all workers in the electrical sector.

In the context of sustainable development, occupational safety plays a significant role in supporting the Sustainable Development Goals (SDGs), particularly Goal 3 (Good Health and Well-being) and Goal 8 (Decent Work and Economic Growth). Without adequate occupational protection, workers are at risk of accidents, injuries, or even fatalities, which may impact economic productivity and social stability (WHO, 2021).

Based on this background, a team of lecturers and students from the Occupational Safety and Health Study Program at Universitas Binawan initiated a socialization and education program on electrical occupational safety. This activity aims to improve workers' knowledge, skills, and awareness regarding the importance of implementing OSH in daily work activities. The educational approach is designed to be practical, contextual, and simulation-based to ensure that it is easily understood and applicable, especially for participants who have never received formal training.

Through this activity, it is expected that workers affiliated with SERBUK will be able to understand the basic principles of occupational safety, identify potential hazards, use PPE correctly, and respond effectively to electrical-related emergency situations. Furthermore, this program also aims to foster a sustainable safety culture within the informal work environment and strengthen the synergy between higher education institutions and the community as part of the implementation of the Tri Dharma of Higher Education (Lingard & Rowlinson, 2005).

## **B. METHODS**

This community service activity was carried out in three main stages: preparation, implementation, and evaluation. These stages were systematically designed to achieve the objective of the program, namely to improve workers' understanding and skills in occupational safety within the electrical field.

### **1. Preparation Stage**

The initial stage began with coordination between the community service team from Universitas Binawan and the partner organization, namely the People's Labor Union (SERBUK) Yogyakarta. This coordination aimed to clarify the objectives of the activity and to jointly determine the schedule and venue of implementation. Subsequently, the team conducted a site survey at the SERBUK Yogyakarta office to assess venue readiness and identify technical requirements, including banners, educational materials, and the activity space. Based on the survey results, the team developed educational materials consisting of PowerPoint presentations, instructional videos on electrical hazards and emergency response, as well as illustrated leaflets and posters containing concise information on the use of personal protective equipment (PPE) and occupational safety procedures.



All materials were designed using simple language and engaging visual elements to ensure they could be easily understood by participants from diverse educational background

## **2. Implementation Stage**

The implementation stage was conducted on Thursday, August 28, 2025, at the SERBUK Yogyakarta office. The activity began with participant registration and leaflet distribution, followed by opening remarks from SERBUK representatives and the community service team.

The core session consisted of two main topics. The first topic introduced the risks of electrical fires and their impact on occupational safety. The second topic focused on risk mitigation measures and evacuation procedures in the event of an electrical fire.

Following the presentation sessions, participants were engaged in a fire evacuation simulation. During this simulation, participants were trained to identify evacuation routes, properly use PPE, and assist vulnerable groups such as the elderly and children. The simulation was conducted in an active and interactive manner, involving all participants to ensure a practical understanding of evacuation procedures.

This training was facilitated by lecturers and students from the Occupational Safety and Health Study Program at Universitas Binawan, who acted as instructors.

## **3. Evaluation Stage**

The final stage involved evaluating the activity using both quantitative and qualitative approaches.

Quantitatively, participants were given a pre-test before the educational session and a post-test after the completion of all activities. This aimed to measure the extent of improvement in participants' knowledge regarding the provided materials.

Qualitatively, the team conducted an open discussion in the form of a Focus Group Discussion (FGD) to explore participants' feedback, the challenges they face in implementing OSH practices, and suggestions for future activities.

The evaluation results indicated a significant improvement in participants' understanding of electrical occupational safety and health. In addition, participants expressed their expectations for similar activities to be conducted regularly, as well as the need for more advanced and technical training in the future.

All evaluation results were used as the basis for preparing the activity report and formulating follow-up recommendations, which were then communicated to partners and relevant stakeholders.

Overall, the community service activity began with the preparation stage, which included coordination with the partner (SERBUK Yogyakarta), site surveys, development of educational materials, and logistical and administrative arrangements. The main activity was conducted on August 28, 2025, starting with registration, opening remarks, delivery of electrical occupational safety materials, and a fire evacuation simulation.

The activity continued with a question-and-answer session and interactive discussion. Evaluation was then carried out through pre-test and post-test assessments to measure participants' level of understanding. Documentation and reporting were completed as a form of accountability.

As a follow-up, it is recommended that similar activities be conducted on a continuous basis, along with the establishment of OSH agents among workers to support the independent implementation of a sustainable safety culture.

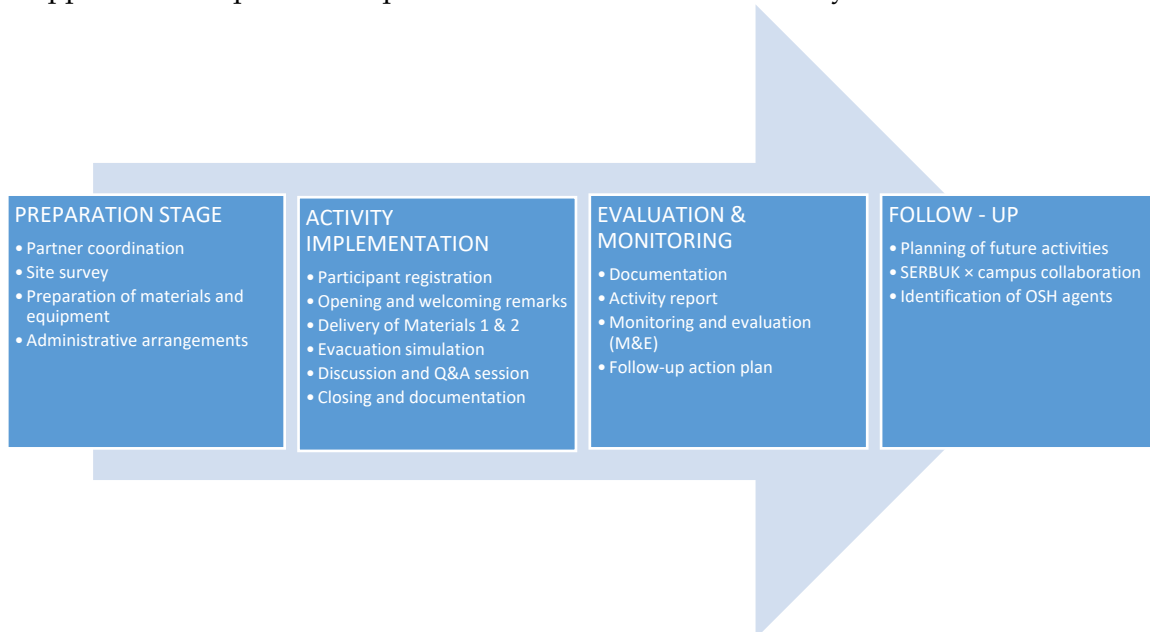


Figure 1. Flow of Community Service Activities Conducted by the Occupational Safety and Health Study Program, Universitas Binawan.

As a follow-up to the community service activity on electrical occupational safety, the team plans to develop a textbook containing educational materials, field practices, and relevant case studies. This book will be used as a learning reference for courses related to electrical Occupational Safety and Health (OSH), as well as a practical guide for students and workers in the field. The development of this textbook also supports the *Merdeka Belajar Kampus Merdeka* (MBKM) program and strengthens academic contributions to improving occupational safety, particularly in the informal sector.

### C. RESULTS AND DISCUSSION

The community service activity entitled “Socialization and Education on Electrical Occupational Safety for Community Members and the People’s Labor Union in Yogyakarta in 2025” was successfully conducted at the office of the People’s Labor Union (SERBUK) Yogyakarta on August 28, 2025. The activity was attended by electrical workers from Yogyakarta and Central Java and involved lecturers and students from the Occupational Safety and Health Study Program, Universitas Binawan.

The activity began with a preparation stage, which included a site survey, permit arrangements, and the preparation of materials such as leaflets, teaching aids, and educational modules. The educational sessions were delivered through presentations and interactive discussions. The materials focused on increasing awareness of electrical safety, safe work procedures, the proper use of personal protective equipment (PPE), and first aid measures for electrical-related occupational accidents (Hasle & Limborg, 2006).

Participants’ enthusiasm was reflected in their active involvement during discussions. Several questions raised by participants demonstrated a strong interest in practical implementation in the field, such as how to develop safe electrical standard operating procedures (SOPs), how to manage victims experiencing breathing difficulties or seizures



while working at heights, and how to identify vital signs in occupational accident victims. This indicates that the materials delivered successfully addressed the real needs and challenges faced by workers in the field (ILO, 2020; Hasle & Limborg, 2006)



Figure 2. Implementation of First Aid Training for Occupational Accidents among Electrical Workers

The findings of this activity indicate that the limited availability of formal training and restricted access to Occupational Safety and Health (OSH) information among laborers and informal sector workers, particularly in the electrical field, are the primary factors contributing to the low implementation of safety practices. This is consistent with previous studies suggesting that informal workers are highly vulnerable to occupational accidents due to weak OSH management structures and inadequate supervision.

Through this community service activity, a participatory-based approach has proven effective in bridging the gap in knowledge and skills. The delivery methods, which incorporated visual media, simulations, and interactive discussions, significantly facilitated participants in understanding and internalizing OSH concepts. Furthermore, the provision of educational materials, such as OSH guidebooks, enables participants to revisit the content independently and share the knowledge with their peers in the workplace.



Figure 3. Group Photo of the Organizing Committee and Participants of the Community Service Activity



This activity also had a positive impact on the organizing institution, namely the Occupational Safety and Health Study Program at Universitas Binawan, which is increasingly recognized by the community as an institution committed to improving occupational safety, particularly in the informal sector. Participants' expectations for similar activities to be conducted on a regular basis further indicate that this program is relevant and provides tangible benefits.

However, several technical challenges were encountered during the implementation, such as delays caused by participants arriving late from outside the city. These constraints serve as important evaluation points for improving logistical management and scheduling in future activities.

Overall, the activity successfully achieved its primary objective of enhancing the knowledge, awareness, and skills of community members and workers in the field of electrical occupational safety. In addition to creating immediate impacts, this activity also contributes to the achievement of the Sustainable Development Goals (SDGs), particularly in promoting health, safety, and well-being through improved workplace safety practices (United Nations, 2015; WHO, 2021).

#### **D. CONCLUSION**

The community service activity entitled "Socialization and Education on Electrical Occupational Safety for Community Members and the People's Labor Union in Yogyakarta" was successfully implemented and produced positive outcomes. Through educational sessions, simulations, and interactive discussions, participants demonstrated an increased understanding of electrical work hazards, the importance of using personal protective equipment (PPE), and emergency response procedures.

The high level of participant enthusiasm indicates that this activity effectively addressed real needs in the field, particularly among informal sector workers who have limited access to OSH training. This program not only strengthens the role of higher education institutions in community engagement but also represents a concrete step toward promoting a sustainable safety culture.

Furthermore, this activity is expected to serve as the foundation for long-term initiatives, including the development of instructional textbooks and the establishment of OSH agents among workers, as efforts to expand the impact of occupational safety education within the community

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Our highest appreciation is also addressed to all participants, particularly electrical workers from Yogyakarta and Central Java, for their enthusiasm, active involvement, and strong engagement during the program.

Without the collaboration and support of all parties, this activity would not have achieved its intended impact. It is hoped that this collaboration will serve as a starting point for sustainable partnerships in improving occupational safety within the community.



## F. AUTHOR CONTRIBUTIONS

Activity implementation: Lulus Suci Hendrawati (LSH), Edwina Rudyarti (ER), Anna Suraya (AS), Lelitasari (L), Yunita Sari Purba (YSP), Uci Sulandari (US), Defi Arjuni (DA); Article preparation: LSH, ER, AS; Impact analysis: ER, YSP, DA; Results presentation: LSH, AS, L; Article revision: ER, US; Other contributions: All authors contributed to coordination with partners, development of educational materials, and field facilitation.

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