ANALYSIS OF STRENGTHENING OCCUPATIONAL SAFETY CULTURE AT PT PUPUK SRIWIDJAJA PALEMBANG FROM A RISK COMMUNICATION PERSPECTIVE

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Abstract:
This study aims to analyze the strengthening of occupational safety culture at PT Pupuk Sriwidjaja Palembang (Pusri) from a risk communication perspective. The background of this research is based on the context of the fertilizer industry, which has a high level of risk related to the handling of hazardous chemicals, making the need for a strong safety culture crucial. Safety culture encompasses not only adherence to procedures but also the values, subjective norms, and behaviors of organizational members that are internalized as part of daily work. The research method used was a descriptive qualitative approach with a post-positivist paradigm, analyzing secondary data from company strategic documents, academic publications, and research reports using content analysis techniques. This approach allows for an in-depth understanding of risk communication strategies and the formation of a safety culture within the company. The study found that strengthening safety culture at PT Pusri was implemented through a five-stage program, starting from spreading awareness and establishing subjective norms to data-driven interventions, using structured, systematic, and proactive principles. Risk communication serves as the foundation for developing employee safety attitudes and behaviors, supported by the Theory of Planned Behavior (TPB). This approach effectively encourages active employee involvement, competency development, and the achievement of the goals of a culture of independent safety and "Zero LTI".
Keywords: Safety Culture, Risk Communication, Theory of Planned Behavior, Sriwidjaja Fertilizer

INTRODUCTION

Occupational safety is a fundamental element in the continuity of company operations, particularly in high-risk sectors such as manufacturing, construction, and energy. In recent decades, the approach to occupational safety has shifted from mere regulatory compliance to the development of a comprehensive safety culture. Safety culture reflects not only individual attitudes and behaviors toward risk but also the collective values, norms, and practices internalized within an organization (Gendi et al., 2024; ICAO, 2018).

Various scientific studies have attempted to identify the key factors that determine how a safety culture can be formed and become a core company value in every employee's work activities. These include leadership aspects, how mature an organization is in developing its culture, and how managerial programs are designed to strengthen the culture within the organization (Gendi et al., 2024; Lal, 2022, 2023; Linden et al., 2025).

Although the concept of safety culture has been widely discussed in academic literature, one crucial aspect remains under-recognized: risk communication, the primary foundation for establishing and strengthening a safety culture. Risk communication is not simply the delivery of technical information about potential hazards, but rather a dynamic process involving the

perception, interpretation, and active participation of all levels of the organization (Covello & Sandman, 2001; Lerøy Sataøen & Eriksson, 2023; National Research Council, 1989). In practice, many companies still view risk communication as part of formal procedures or technical training, rather than as a strategic and participatory communication strategy. Effective risk communication can, however, raise awareness, build trust, and encourage employee involvement in safety-related decision-making. In other words, risk communication is not only a mitigation tool but also a mechanism for culture formation.

Previous studies on safety culture have tended to emphasize factors such as leadership, training, incident reporting systems, and compliance with standards. Meanwhile, risk communication is often positioned as a supporting component, rather than a core driver, in building a safety culture. It creates a significant theoretical gap: the lack of a comprehensive approach that integrates risk communication as a primary strategy in building a sustainable safety culture. In industries related to chemical processing, such as the fertilizer industry, this issue is particularly crucial due to the high hazards surrounding its production processes.

Fertilizer factories producing urea and ammonia are among the most complex in the chemical industry. The processes involved in the production of urea and ammonia are hazardous substances (toxic), involving the handling of various hazardous substances and encompassing various technologies. The fertilizer factory's operating system can also be described as a factory operation with high potential for hazards. One company engaged in fertilizer production that understands the hazards and importance of safety in its operations is PT Pupuk Sriwidjaja Palembang (Pusri).

Based on data from PT Pusri, over the past four years, there has been a decrease in the number of workplace accidents, indicating an improvement in OHS performance since 2021. Until mid-2024, the number of workplace accidents at PT Pusri was 0, or no workplace accidents occurred, as seen in the following Figure:
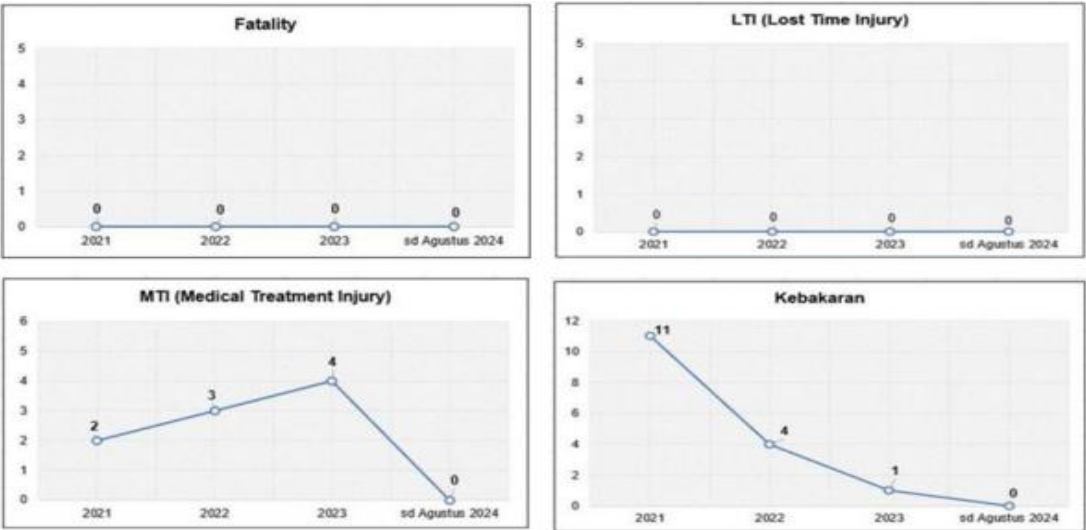

Figure 1. Workplace Accident Rates for 2021 - Semester 1 of 2024 (PT Pusri Palembang, 2024)

However, entering the second semester of 2024 and ending the year, one workplace accident was recorded, meaning PT Pusri failed to achieve zero accidents in its factory operations in 2024. Overall, the number of fatal workplace accidents at Pusri in the past four years was zero. Meanwhile, the number of workplace accidents requiring medical treatment, although experiencing an upward trend from 2021 to 2023, had declined again by August 2024, reaching zero. Similarly, fire accidents

increased, following a downward trend until August 2024. During this period, PT Pusri appears to have been quite successful in maintaining its OHS performance by establishing a strong organizational culture.

There are certainly many factors underlying PT Pusri's inability to achieve zero accidents in 2024. However, from an organizational communication perspective, the issue that needs to be addressed is undoubtedly related to the factors that foster a culture of high awareness among all members of the organization. At PT Pusri, risk communication is also inseparable from the implementation within the company. Furthermore, most existing safety culture models have not explicitly accommodated the dimensions of risk communication, which include cognitive (risk perception), affective (emotions and beliefs), and social (interactions and collective norms). In fact, these three aspects greatly determine how risks are understood and responded to by individuals and groups within the organization. This study aims to: 1) Critically review the practice of risk communication at PT Pupuk Sriwidjaja Palembang as an integral part of the work safety culture. 2) Identify elements of risk communication that contribute to strengthening the safety culture from the aspect of shaping the behavior of organizational members.

Theoretical Basis. This study uses the Theory of Planned Behavior (Ajzen, 1991) as the basis for analyzing the problem under study. The two main concepts discussed are risk communication and occupational safety culture.

Theory of Planned Behavior. The Theory of Planned Behavior (TPB) by Icek Ajzen (1991) is one of the most influential behavioral theories in social psychology and risk communication. This theory is highly relevant for explaining how individuals make decisions about action, including in the context of occupational safety. The basic assumption of this theory is that human behavior is planned and rational. It means that individuals do not act impulsively, but rather based on logical consideration of the consequences of their actions (Ajzen, 1991).

In explaining his theory, Ajzen (1991) states that intention is the primary predictor of a person's behavior. The stronger a person's intention to act, the more likely it is that the action will be carried out. Furthermore, according to this theory, intention is shaped or influenced by three components in shaping behavior:

1. Attitude toward a behavior: The extent to which a person evaluates the behavior as positive or negative.
2. Subjective norm: Perception of social pressure or expectations of others regarding the behavior.
3. Perceived behavioral control: An individual's belief in their ability to perform the behavior (similar to the concept of self-efficacy).

Risk Communication. According to the National Research Council (1989), risk communication is the interactive process of exchanging information and opinions between individuals, groups, and institutions regarding risks or potential risks to human health or the environment. Communication is viewed as the sharing of information and information about potential future damage and hazards, with the aim of enabling relevant parties to take steps to reduce these risks and/or prepare for them (Augustine Nuriman & Hidayat, 2025; Covello & Sandman, 2001; da Cunha, 2025; Lerøy Sataøen & Eriksson, 2023; Meyer & Johann, 2025; OHSE, 2025; Sulistyo et al., 2022).

Meanwhile, according to Emal et al. (2022), risk communication is defined as the process of conveying information about risks, encompassing several key elements and three objectives. These elements are:

1. Risk perception: Involves individuals' beliefs and understanding of risks within their social and cultural context, including prior experience and knowledge. Risk perception influences an individual's likelihood of taking preventive action.
2. Communication about symptoms of harm: Providing information about early signs that indicate the possibility of a work-related risk.
3. Communication about risk factors: Providing information about factors that can cause work-related harm.
4. Communication about prevention: Providing preventive measures to reduce the risk of stress harm.

The three goals of risk communication are to inform, encourage informed decision-making, and motivate preventive action (Emal et al., 2022). Effective risk communication must also bridge the gap between experts' risk perceptions and recipients', taking into account the recipients' experiences, attitudes, and emotions to make them more likely to take preventive action.

Safety Culture. This paper defines occupational safety culture, referring to Gendi et al. (2024), as how people behave toward safety and risk in the absence of a supervisor, reflecting the extent to which employees perceive an organization's commitment to safety. Safety culture is a sustainable organizational attribute that involves shared values and collective contributions at all levels of the organization related to efforts to improve safety aspects at work (Berglund et al., 2025; Lal, 2022, 2023; Linden et al., 2025; Raditsela et al., 2025; Shourideh et al., 2025; Sudiarno & Sudarni, 2020). In this context, safety culture is often used interchangeably with the term "safety climate," which refers more to individual perceptions of an organization's safety programs and practices, which can be measured quantitatively and change based on events (Gendi et al., 2024).

Furthermore, ICAO (2018) defines safety culture as "how people behave regarding safety and risk when no one is watching." In other words, this definition emphasizes the perceptions and priorities of safety by organizational members. Safety culture is the foundation of the safety promotion pillar in a safety management system (SMS) and needs to be monitored and evaluated to improve the organization's safety performance continuously. Therefore, it can be said that safety culture is:

1. Organizational attributes (including perceptions, psychology, attitudes, behaviors, and managerial aspects) that involve collective values and attitudes regarding safety across all levels of the organization (Berglund et al., 2025; Lal, 2022, 2023; Linden et al., 2025; Raditsela et al., 2025; Shourideh et al., 2025; Sudiarno & Sudarni, 2020).
2. Safety behaviors and priorities internalized by organizational members (personal, behavioral, and situational).
3. A crucial foundation of a safety management system that must be continuously monitored and improved.

METHODS

This research uses a post-positivist paradigm as the basis for the researcher's thinking. The approach used in this study is descriptive qualitative, which aims to gain a deeper understanding of corporate strategy through analysis of related documents and literature. This approach allows researchers to explore the meaning, context, and dynamics contained within corporate strategy documents and compare them with findings from previous studies.

The data used are secondary data derived from corporate strategy documents, such as visions and missions, business plans, annual reports, and relevant internal policies. They also include various scientific journal articles, research reports, and academic publications discussing the theory

and practice of corporate strategy. This data is used to enrich the analysis and provide a theoretical foundation. The data were analyzed using content analysis. Researchers categorized information based on strategic themes. This process was carried out systematically to uncover the implicit and explicit meanings within the documents and compare them with academic literature.

RESULT AND DISCUSSION

Based on the presentation of the strategy for establishing an occupational safety culture at PT Pusri, there are at least five stages of programs/actions that are implemented, which include the following:
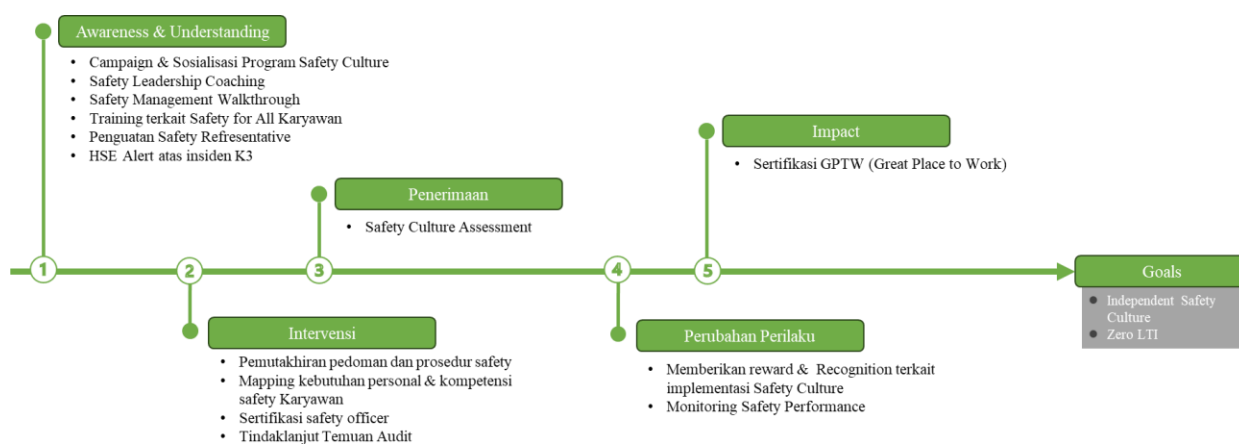

Figure 2. Safety Culture Program of PT Pusri (PT Pusri Palembang, 2025)

Based on the PT Pusri safety culture program, from the perspective of risk communication and the Theory of Planned Behavior (TPB) which views that individuals do not act impulsively, but rather based on logical considerations of the consequences of actions (Ajzen, 1991), at least three processes for forming logical considerations from an employee in implementing elements of a strong work safety culture were obtained.

Strategy for Forming Attitudes on Safety Culture. PT Pusri implements the first phase of its awareness and understanding program to foster a strong attitude toward the importance of implementing safety principles at work. At this stage, the organization focuses on disseminating an understanding of safety culture to all employees.

At this stage, the principle of risk communication plays a significant role, as this awareness and understanding program serves as an interactive process for exchanging information and opinions between individuals and groups within PT Pusri regarding risks or potential risks to employees/workers and the surrounding environment. There are at least four processes for conveying information about risks, encompassing elements of risk perception, error symptoms, risk factors, and prevention (Emal et al., 2022).

1. Campaigns and outreach were conducted to ensure everyone understood the importance of occupational safety and the ongoing program. Training was provided to all employees to increase awareness and understanding of safety risks and procedures.

The initial implementation of the safety culture awareness and understanding program was carried out through campaigns and outreach that adapted the main principles of risk communication, which is viewed as information and communication regarding potential damage and hazards that may occur in the future. The aim is to enable parties at PT Pusri, especially employees, to take steps to mitigate these risks and/or prepare themselves to face them (Agustine

Nuriman & Hidayat, 2025; Covello & Sandman, 2001; da Cunha, 2025; Lerøy Sataøen & Eriksson, 2023; Meyer & Johann, 2025; OHSE, 2025).

When running campaigns and socialization, the basic principles implemented are related to understanding the perspectives and needs of the target audience, in this case PT Pusri employees, using a reflective and participatory communication model in every internal interaction, accommodating risk perceptions and local contexts according to the company's internal conditions, utilizing various communication media (Covello & Sandman, 2001; da Cunha, 2025; Lerøy Sataøen & Eriksson, 2023; Meyer & Johann, 2025).

2. Safety Leadership Coaching is given to leaders so that they are able to become the main role models and supporters in practicing work safety. The presence of leaders in providing examples and direction at work is an important factor in forming a safety culture.

Safety Leadership Coaching is a process of coaching and developing leadership skills focused on occupational safety aspects within an organization. Its primary goal is to develop leaders who not only manage operational activities but also serve as role models and agents of change in creating and maintaining a strong safety culture in the workplace. The program's primary objective is to increase leaders' awareness and ability to identify risks, encourage safety communication, make quick and appropriate safety decisions, and motivate employees to prioritize Occupational Safety and Health (K3) aspects.

Leaders are crucial for organizations to achieve their goals. Today, in addition to financial targets, organizations also need to fulfill environmental and social responsibilities, and leaders are expected to play a crucial role in fostering an ethical climate in the workplace (Grojean et al., 2004). A leader is considered effective, moral, and ethical based on good deeds and quality, and will determine the organizational work climate, including in the context of promoting a culture of safety in the workplace (Sulistyo et al., 2022). So PT Pusri sees training on in-depth understanding of occupational safety culture as one of the strategic efforts in maximizing employee awareness and behavior in working safely and implementing occupational safety principles.

3. Safety Management Walkthrough is a routine activity where the leader and team conduct direct inspections and observations to ensure safe working conditions.

The Safety Management Walkthrough is an intervention program to support the development of a safety culture within the organization at PT Pusri. This program involves direct inspections conducted by management, particularly leaders and supervisors, on the job site to monitor the implementation of safety standards, identify potential hazards, and interact directly with employees regarding occupational safety aspects. The program aims to strengthen the role of safety supervision and leadership, increase employee awareness and compliance with OHS standards, and accelerate risk identification and mitigation before accidents occur.

Components of this program include visual inspections and direct observation, where the management team checks all safety-related aspects, such as the condition of personal protective equipment (PPE), work area layout, machine condition, and the extent of safety procedures implemented. Furthermore, during these inspections, direct interaction with employees is crucial in establishing initial attitudes toward a safety culture.

4. Strengthening Safety Representatives by creating safety representative roles in each department. Strengthening Safety Representatives is one of the follow-up program stages within the Awareness & Understanding phase to strengthen the role of safety representatives in the workplace. They serve as liaisons between management and employees regarding policies, implementation, and reporting related to occupational safety.

This program aims to increase the capacity and participation of safety representatives in overseeing and implementing a safety culture within the company. The main components of this phase are granting clear authority and responsibility to appointed representatives, providing facilities and support from management, strengthening communication and coordination, and establishing reporting and follow-up mechanisms.

5. In addition, HSE Alerts are issued regarding workplace incidents or accidents as a means of collective learning.

An HSE Alert is a notification or announcement containing information regarding occupational health and safety (OHS) incidents or incidents that have occurred, either within the company itself or in similar industries. The purpose of this HSE Alert is to provide warnings, provide learning, and increase the vigilance of all employees to prevent repeat errors or dangerous conditions that could lead to similar incidents.

The HSE Alert implementation mechanism begins with collecting incident data from various sources, including safety audits, accident reports, or near misses. It is followed by an incident analysis, including the causes and contributing factors, to identify the root cause. It is followed by the development of an easily understood format, typically in the form of a concise report, poster, or presentation, which is then distributed to all employees through existing communication channels, such as email, bulletin boards, meetings, or safety briefings.

Table 1. Strategy for Forming Attitudes towards Safety Culture at PT Pusri

Program	Implementation	Impact on the Formation of a Safety Culture	
		Basic Objectives	Final destination
Campaign and socialization	- Implementation of OHS webinars and training - Installation of OHS signs and posters	Awareness of occupational safety	Formation of Positive Attitudes towards Safety Behavior
Safety Leadership Coaching	Implementation of training for structural officials (middle up) related to K3	Deep understanding of work safety	
Safety Management Walkthrough	Periodic implementation of SMWT involving the company's Board of Directors.		
Strengthening Safety Representatives	Implementation of periodic training for safety representatives	Strengthening awareness and understanding of occupational safety	
HSE Alert	Prepare HSE Alerts for incidents that occur to provide information and increase employee awareness.	Increase risk awareness and reminders of occupational safety threats.	

Strategy for Forming Subjective Norms for Safety Culture. The Intervention Phase of the Safety Culture program is the phase in which concrete and strategic actions are taken to improve and enhance the safety system in the workplace, particularly at PT Pusri. This phase focuses on updating and enhancing instruments and competencies that support the implementation of an effective safety culture.

The Intervention Phase includes several key activities that directly impact safety system improvement, namely:

1. Updating Safety Guidelines and Procedures. Revising and updating regulatory documents, standards, and work procedures to align with the latest developments and operational needs.
2. Mapping Personnel Needs & Employee Safety Competencies. Identifying human resource needs, both in terms of quantity and competency, is required to implement the safety program optimally.
3. Safety Officer Certification. Providing training and certification to safety officers to ensure they have the skills and qualifications to meet standards.
4. Following Up on Audit Findings. Following up on safety audit findings by implementing improvements and evaluations to prevent the recurrence of detected problems.

In implementing this intervention phase, there are at least several basic principles that must be adhered to, namely:

1. Structured and Systematic. Steps are carried out in a planned manner, involving various relevant parties to ensure that safety system updates and improvements are truly effective.
2. Data- and Analysis-Based. Intervention actions are carried out based on the results of evaluations, audits, and risk measurements, ensuring that solutions are targeted.
3. Competency and System Improvement Oriented. Focuses not only on documents and procedures but also on developing competent human resources in safety.
4. Active and Proactive. This program does not wait for incidents to occur, but rather actively implements improvements and prevention through concrete actions.

By implementing the Intervention phase effectively, organizations can build a strong foundation for implementing an independent safety culture, leading to the achievement of goals such as an "Independent Safety Culture" and "Zero LTI" (Zero Lost Time Injury).

Table 2. Strategy for Forming Subjective Norms for Safety Culture at PT Pusri

Program	Implementation	Impact on the Formation of a Safety Culture	
		Basic Objectives	**Final destination**
Safety guidelines and procedures updates	- Standardization of Process Safety Management Guidelines - Preparation of technical guidelines for the PSM guideline	Establishment of up-to-date standards for implementing occupational safety aspects	Formation of Subjective Norms of Safety Behavior
Mapping personal needs and employee safety competencies	- Develop competency standards for each employee in each work unit. - Benchmark against other industries	Formation of employee perceptions regarding the extent to which the company expects safety behavior to be carried out (normative belief)	
Office safety certification	Implementation of employee training and certification in accordance with competency	Formation of Motivation to comply	

		mapping and regulatory requirements provisions.	
Follow-up on Audit Findings		Carrying out regular audits and ensuring follow-up through audit follow-up monitoring meetings.	

Strategy for Forming Perceptions of Behavioral Control over Safety Culture. Perceived behavioral control refers to the extent to which an individual feels capable or in control of performing a particular behavior (Ajzen, 1991), in this case, behavior toward implementing safety culture principles. In the context of safety culture, behavioral control is closely related to various stimuli that motivate an individual to act, particularly related to the availability of resources (time, money, skills, social support). In the context of PT Pusri, this is achieved through rewards to stimulate further employee behavioral awareness and the measurement of external obstacles or constraints (rules, environmental situations, pressures) and personal capabilities (self-efficacy), which are implemented through safety measurement evaluations.

According to Ajzen (1991), there are at least two main dimensions of perceived behavioral control: control beliefs and perceived power. Control beliefs refer to beliefs about factors that can facilitate or hinder behavior. PT Pusri strives to facilitate the implementation of safety principles at work, complemented by rewards and recognition, which foster employee confidence in strengthening a safety culture while working. Meanwhile, perceived power in the context of occupational safety culture at PT Pusri relates to the extent to which the factors shaping the safety culture provided by PT Pusti influence employees' ability and willingness to engage in safety behaviors.

The combination of control beliefs and perceived power shapes an individual's overall perception of behavioral control. The implication for predicting safety culture implementation behavior is that if an employee believes they are capable of acting and have control over external factors, their intention to do so will be stronger, as in implementing a safety culture.

Table 3. Strategy for Forming Perceptions of Behavioral Control over Safety Culture at PT Pusri

Program	Implementation	Impact on the Formation of a Safety Culture	
		Basic Objectives	**Final destination**
Safety Cultural Assessment	Implementation of periodic safety culture surveys.	Measuring employee acceptance of the implemented safety culture rules	Formation of Perceived Behavioral Control of Safety Behavior
Rewards & Recognition Related to the Implementation of Safety Culture	Rewards and Punishments are implemented periodically during K3 events (National K3 Month) and other company events.	Encourage the adoption of stronger safety behaviors (control beliefs)	
Monitoring Safety Performance	Compile monthly K3 reports and conduct review processes on K3 performance at operational meetings and	Measuring the extent to which efforts and strategies for implementing safety	

P2K3 meetings.	culture have been implemented at PT Pusri.
Impact of GPTW Certification (Great Place to Work)	Implementation of Audit of Compliance with GPTW Compliance Criteria Standards

In implementing risk communication at PT Pusri to strengthen safety culture, several communication strategies are implemented:

1. Campaign Planning (Messages and Media). It is the initial effort to identify the key messages to be conveyed, such as the importance of using Personal Protective Equipment (PPE), safe work procedures, the potential hazards of chemicals, and the urgency of reporting incidents. Next, the media to be used (posters, leaflets, videos, internal social media, information boards) and the schedule for regular outreach are determined. PT Pusri implements this combination of media to ensure that the risk communication message reaches all employees.

2. Outreach Implementation. The HSE team conducts seminars, workshops, or briefings explaining aspects of occupational safety according to the characteristics of chemicals in the industry operated by PT Pusri. The outreach also utilizes case studies and incident experiences to provide learning and raise awareness. Updates on the latest policies or procedures related to occupational safety are also provided.

3. Involvement of Leadership and Safety Representatives. This stage involves using communicators deemed to have high credibility in delivering the communication message. Efforts include encouraging management and supervisors to actively participate in the campaign as role models actively, and optimizing the role of Safety Representatives as a liaison for two-way communication between employees and management regarding safety issues.

4. Effectiveness Measurement. Effectiveness measurements are conducted periodically as a form of evaluation of the safety culture implemented at PT Pusri. Evaluations typically involve conducting surveys or quizzes after socialization to gauge employee understanding and monitoring the level of compliance with work safety procedures during and after the campaign.

5. Reinforcement. It is an effort to reinforce all elements of the company by providing recognition or awards to individuals or teams that demonstrate high commitment and compliance during the campaign. Thus, the campaign and socialization not only provide information but also foster a culture of safety awareness, thus becoming an everyday behavior for employees in high-risk environments such as the chemical processing industry, particularly at PT Pusri.

CONCLUSION

This study concludes that strengthening the occupational safety culture at PT Pupuk Sriwidjaja Palembang (Pusri) is significantly influenced by the implementation of strategic and participatory risk communication. Using the Theory of Planned Behavior approach, the formation of a safety culture is achieved through strengthening employee attitudes, subjective norms, and perceived behavioral control regarding occupational safety aspects. The risk communication strategy, which includes message planning, varied media use, and a safety performance monitoring and reward program, successfully increased employee awareness and active involvement in implementing safety principles.

Furthermore, the emphasis on rewards and recognition, as well as performance monitoring, also strengthened employee confidence and ability to implement safety behaviors consistently. This structured, systematic, and sustainable approach contributed to a decrease in workplace accidents and established a self-sustaining and sustainable safety culture at PT Pusri. Therefore, risk communication is not merely a means of conveying information, but rather a key foundation for building an effective safety culture in a high-risk industry like fertilizer manufacturing.

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