Business, Economics, Law, Communication, and Social Sciences (BELACOSS)

Scholarly Scientific Journal
ISSN (Online): 3089-9001, ISSN (Print):
https://journal.arepublisher.com/index.php/belacoss

Gap Analysis of ISO 45001:2018 Implementation: A Case Study of a Local Government Environmental Agency

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ABSTRACT

This study aims to analyze the implementation of the Occupational Health and Safety Management System (OHSMS) within one local government environmental agency, as a case study, based on ISO 45001:2018 standards. A descriptive qualitative approach was applied, utilizing in-depth interviews, direct observation, and documentation review to collect data. Informants consisted of employees and structural officials responsible for occupational health and safety management. The research employed a gap analysis method to compare actual practices with ISO 45001:2018 requirements. Findings reveal that most clauses of the ISO standard are not optimally implemented. The agency lacks formal OHS policies, systematic documentation, and structured procedures. Organizational support and leadership commitment remain limited, while evaluation and continuous improvement practices are underdeveloped. The study concludes that substantial gaps exist between current practices and ISO 45001:2018, requiring a more formalized, structured, and sustainable OHSMS. These results provide insights for enhancing OHS implementation in public sector organizations, though findings should be interpreted as specific to the studied case rather than generalized to all institutions.

Keywords: OHSMS; ISO 45001:2018; Gap Analysis; Occupational Safety; Public Sector.

Submitted: 10-10-2026	Revised: 13-11-2026	Accepted: 21-11-2025

Article Doi:
http:

e-ISSN: 3089-9001

INTRODUCTION

Occupational Health and Safety (OHS) has become a global concern across both private and public sectors, as organizations increasingly recognize the importance of protecting workers and ensuring sustainable operations. According to the International Labour Organization (ILO), an estimated 2.3 million people die annually due to work-related accidents or diseases, while over 300 million workers suffer from non-fatal occupational incidents worldwide. These statistics illustrate the magnitude of OHS as a public health, economic, and social issue that requires systemic solutions.

The role of Occupational Health and Safety Management Systems (OHSMS) is central in addressing such challenges. An OHSMS provides a structured framework that allows organizations to systematically identify hazards, assess risks, and implement preventive and corrective measures. Beyond accident prevention, a robust OHSMS helps institutions enhance productivity, reduce absenteeism, and build employee trust. In turn, this contributes to long- term organizational sustainability and resilience.

In developing countries, including those in Southeast Asia, OHS implementation often encounters unique challenges. Factors such as limited resources, weak enforcement of regulations, inadequate training, and cultural attitudes toward safety can create gaps between policy and practice. In some cases, occupational safety is treated as a compliance issue rather than as a strategic investment, which limits its effectiveness. Public institutions are no exception: while they are expected to be role models for safety practices, they frequently lack the resources, organizational structures, or managerial commitment required for effective OHSMS implementation.

ISO 45001:2018, the first global OHS standard, was introduced to provide organizations with a comprehensive system that integrates OHS into their overall management. By aligning with other ISO standards such as ISO 9001 (quality management) and ISO 14001 (environmental management), ISO 45001 encourages organizations to adopt a holistic approach. It emphasizes leadership commitment, worker participation, risk-based thinking, and continuous improvement through the Plan–Do–Check–Act (PDCA) cycle. As a result, organizations that implement ISO 45001 are better positioned to not only comply with regulations but also to proactively safeguard workers' health and safety.

Despite these benefits, public sector institutions tend to lag behind private companies in adopting international standards like ISO 45001. Previous studies have shown that many government agencies have limited awareness of OHSMS, weak documentation practices, and minimal evaluation mechanisms. In some cases, OHS activities are implemented only after accidents occur, making them reactive rather than preventive. This is particularly concerning in government agencies involved in environmental management, as their activities—such as waste collection, hazardous material handling, and field inspections—pose significant risks to employees.

The present study focuses on one local government environmental agency as a case study. The agency's daily operations expose workers to chemical, biological, ergonomic, and physical hazards. However, preliminary observations revealed a lack of formal OHS policies, inadequate hazard reporting mechanisms, and limited managerial commitment. This situation reflects broader challenges faced by public institutions in ensuring workplace safety and raises the question of how well such agencies align with international standards like ISO 45001:2018.

By conducting a gap analysis, this research aims to evaluate the current state of OHSMS implementation in the agency and identify discrepancies with ISO 45001 requirements. Gap

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analysis is a valuable tool because it not only reveals deficiencies but also provides guidance on how to bridge them. Through interviews, observations, and document analysis, the study systematically explores the extent to which OHSMS practices in the agency comply with international standards.

The rationale for this study is twofold. First, it provides practical insights for the agency under investigation, highlighting priority areas for improvement. Second, it contributes to academic discourse by adding to the relatively limited body of literature on OHSMS implementation in public sector institutions, especially in Southeast Asia. By situating the findings within the broader context of OHS research, the study also seeks to inform policymakers and practitioners on strategies for strengthening OHS governance in government organizations.

The central objective of this research is therefore to assess the alignment of one local government environmental agency's OHSMS with ISO 45001:2018, identify existing gaps, and recommend strategies for improvement. In doing so, the study acknowledges its nature as a single case study, which means that while the findings provide useful insights, they are not directly generalizable to all institutions. Nonetheless, the case offers valuable lessons that can be applied to similar organizations facing comparable challenges.

LITERATURE REVIEW

Occupational Health and Safety Management System (OHSMS)

OHSMS refers to an integrated management framework designed to prevent workplace hazards, ensure worker protection, and enhance productivity. According to Setyoko (2017), OHSMS encompasses organizational structures, planning, responsibilities, implementation, procedures, and resources to sustain workplace safety. The presence of a structured OHSMS not only minimizes accident rates but also strengthens employee confidence in the workplace environment. Scholars agree that institutions with established OHSMS demonstrate better performance outcomes and lower rates of absenteeism.

ISO 45001:2018 Standard

ISO 45001:2018 is the first global OHS standard, replacing OHSAS 18001. It adopts the High-Level Structure (HLS), aligning with ISO 9001 and ISO 14001. The standard emphasizes leadership commitment, stakeholder involvement, risk identification, and continuous improvement (Yusuf, 2019). Compared with previous standards, ISO 45001 shifts focus toward preventive measures and systemic integration, requiring organizations to embed OHS into overall business processes.

The clauses central to ISO 45001:2018 include:

- **Clause 4:** Context of the organization
- **Clause 5:** Leadership and worker participation
- **Clause 6:** Planning
- **Clause 7:** Support
- **Clause 8:** Operation
- **Clause 9:** Performance evaluation
- **Clause 10:** Improvement

Each clause functions as a building block of a comprehensive system. For example, Clause 5 underlines the importance of top management commitment and active worker participation. Without leadership involvement, the system may remain procedural but ineffective. Clause 6 focuses on planning, which ensures that hazard identification and risk assessment are not merely one-time actions but an ongoing process.

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Gap Analysis Method

Gap analysis compares actual practices against ideal standards to identify performance discrepancies. It has been widely applied in OHS research. Yoshana et al. (2022) found a 12% gap in OHS implementation in a manufacturing company, while Wahyudi et al. (2024) reported a 94% readiness score in a hospital setting, requiring only minor improvements. These findings illustrate that the gap analysis method provides both diagnostic and prescriptive value.

In the context of public institutions, gap analysis helps uncover the extent of alignment with global standards, revealing structural weaknesses such as lack of documentation, inadequate monitoring, and insufficient training. It provides a roadmap for institutions to set realistic targets and allocate resources effectively.

Previous Studies

Prior research highlights varying levels of ISO 45001 implementation across sectors. Common challenges include limited leadership commitment, inadequate documentation, insufficient training, and weak monitoring mechanisms (Nabihah & Kadir, 2023). Halidinah (2021) emphasized that public sector institutions often encounter barriers in terms of budget allocation, organizational culture, and low prioritization of OHS compared to service delivery goals.

These findings underline the importance of evaluating public sector readiness for ISO 45001 adoption. Moreover, by situating this study within existing literature, the analysis contributes to filling the gap in empirical studies focusing on government institutions, where research is still relatively scarce compared to manufacturing and healthcare sectors.

METHOD

This study adopted a descriptive qualitative research design, chosen for its capacity to provide in-depth insights into the implementation of occupational health and safety management systems (OHSMS). Unlike quantitative approaches, which aim for statistical generalization, qualitative methods emphasize understanding processes, behaviours, and institutional dynamics within a specific context. Given that this research was conducted as a case study of one local government environmental agency, the qualitative design was considered the most appropriate strategy to capture the complexity of organizational practices.

Research Design

The case study approach was applied to allow an intensive exploration of the selected institution. Yin (2018) highlights that case studies are particularly valuable for investigating contemporary phenomena in their real-life contexts, especially when the boundaries between phenomenon and context are not clearly evident. In this research, the phenomenon under investigation was the implementation of OHSMS according to ISO 45001:2018, while the organizational and cultural context of the agency formed an inseparable part of the analysis.

Research Site and Context

The study was carried out in one local government environmental agency located in Southeast Asia. The agency is responsible for functions such as solid waste management, hazardous material handling, environmental monitoring, and public sanitation services. These activities expose employees to significant occupational hazards, ranging from chemical exposure and ergonomic strain to biological risks during field operations. This makes the institution an important site for evaluating the extent of ISO 45001:2018 implementation in the public sector.

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Participants and Informants
Informants were selected purposively, targeting individuals with direct involvement in occupational health and safety activities or responsibilities. They included structural officials, supervisors, and operational staff. The rationale for selecting these categories was to capture both managerial perspectives (policy, planning, leadership) and workers perspectives (practical challenges, awareness, participation).
Several informants participated in the study, with backgrounds varying from administrative positions to field operations. The diversity of informants provided a comprehensive understanding of how OHSMS principles were understood and practiced at multiple organizational levels. Ethical considerations were observed by ensuring confidentiality and anonymizing the name of the institution and participants.

Data Collection Methods
Three primary methods were employed to collect data:

1. **In-depth Interviews**
   Conducted with employees and officials responsible for OHS, designed to capture perspectives regarding current practices, challenges, and awareness of OHSMS principles.
2. **Observation**
   On-site review of safety practices, facilities, and documentation to provide real-time validation of interview statements.
3. **Document Analysis**
   Examination of relevant internal records, regulatory documents, and guidelines to cross-check practices against formal requirements. Triangulation across interviews, observations, and documents increased the validity of findings, minimizing the risk of bias from relying on a single data source.

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Data Analysis
The collected data were analyzed using the gap analysis framework. This involved comparing actual practices observed in the agency with the requirements of ISO 45001:2018. A Likert scale measured compliance levels, from 1 (not compliant) to 5 (fully compliant). Results were presented as percentages of compliance and gaps. This systematic comparison enabled researchers to highlight which clauses were furthest from compliance and therefore required priority action.

Context of the case study
The research was conducted in one government environmental agency located in Southeast Asia. While the findings reflect the characteristics of this institution, they should not be generalized to all government organizations, either within the region or globally.

RESULTS AND DISCUSSION

Results
The results of the gap analysis demonstrated that the agency has not yet achieved compliance with most clauses of ISO 45001:2018. Although certain informal practices were observed, these practices were neither systematically documented nor integrated into a structured management system. Below is a summary of the findings per clause:

- **Clause 4: Context of the Organization**

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The agency has not conducted a structured analysis of internal and external factors affecting its OHSMS. Stakeholder expectations, such as those of employees, local communities, and regulators, are not systematically identified. The absence of this mapping process results in weak strategic alignment between organizational objectives and occupational health and safety goals.

- **Clause 5: Leadership and Worker Participation**
  No formal occupational health and safety (OHS) policy has been established. Leadership commitment is weak and tends to be reactive rather than proactive, often responding only after accidents occur. Workers' involvement in decision-making is minimal, and there is no dedicated OHS committee to facilitate dialogue between management and employees.
- **Clause 6: Planning**
  Hazard identification and risk assessment are carried out sporadically and informally, often relying on individual initiative rather than systematic procedures. There are no documented OHS objectives, measurable targets, or formal risk registers. Planning activities are short-term and focus only on immediate operational needs.
- **Clause 7: Support**
  Resources allocated for OHS are inadequate. Training activities are rare and generally conducted only after incidents. Communication channels regarding safety information are weak, and safety signage is inconsistently applied. Employees reported limited awareness of emergency procedures, suggesting insufficient dissemination of safety knowledge.
- **Clause 8: Operation**
  Operational controls are not supported by standard operating procedures (SOPs). Emergency preparedness is reactive, with no regular drills or simulations conducted. High- risk activities, such as handling hazardous waste, are performed without systematic guidance. Documentation of operational procedures is almost non existent.
- **Clause 9: Performance Evaluation**
  There are no mechanisms for monitoring and evaluation of OHSMS. Internal audits and management reviews are not conducted, and performance indicators are not defined. Consequently, the agency lacks objective data to measure its progress in achieving safety outcomes.
- **Clause 10: Improvement**
  Improvement activities are primarily corrective rather than preventive. Actions are taken only after incidents occur, and lessons learned are rarely translated into institutional reforms. Continuous improvement, as emphasized in ISO 45001, is absent.

Overall, the compliance level of the agency was found to be low across all clauses, with the largest gaps observed in Clauses 5, 6, 9, and 10.

Discussion

The findings reveal a significant gap between the agency's current practices and the requirements of ISO 45001:2018. Several key themes emerged from the analysis, which can be interpreted through theoretical frameworks and comparisons with previous studies.

1. **Leadership Commitment and Organizational Culture**
   Leadership plays a pivotal role in shaping the culture of safety. ISO 45001 emphasizes that top management must demonstrate commitment by establishing policies, allocating resources, and engaging workers. However, in the studied agency, leadership engagement is

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limited. Safety is perceived as a secondary issue compared to operational performance. This confirms the assertion of Nabihah and Kadir (2023), who found that weak leadership commitment is one of the most significant barriers to OHSMS adoption.

Without leadership support, OHSMS remains procedural and fails to influence organizational culture. The absence of a formal safety policy also means that safety objectives are not integrated into the agency's strategic direction. This contrasts with successful implementations reported in manufacturing and healthcare sectors, where leadership endorsement has been key to embedding safety into daily operations.

2. **Worker Participation and Communication**

Active worker participation is another cornerstone of ISO 45001. The studied agency lacks mechanisms for workers to contribute to OHS decision-making. This creates a disconnect between those who face risks daily and those responsible for setting policies. Previous research (Halidinah, 2021) similarly noted that government institutions often fail to empower workers in safety processes due to hierarchical organizational cultures.

Furthermore, communication within the agency is limited. Safety information is not consistently disseminated, and many employees are unaware of emergency protocols. Effective communication, as Yusuf (2019) argues, is essential for building a shared understanding of hazards and responsibilities. Without it, workers are left vulnerable to avoidable risks.

3. **Planning and Risk-Based Thinking**

One of the key innovations of ISO 45001 is its emphasis on risk-based thinking. Organizations are expected to identify hazards, assess risks, and set measurable objectives. In the agency, planning is ad hoc and reactive. Hazards are recognized informally but not documented or analyzed systematically.

This gap undermines the proactive orientation of the PDCA cycle. Yoshana et al. (2022) found that manufacturing companies adopting risk-based planning experienced significant reductions in accident rates, underlining the importance of this clause. The absence of planning mechanisms in the agency explains why incidents are responded to reactively rather than prevented.

4. **Resource Allocation and Capacity Building**

The lack of dedicated resources for OHS indicates low prioritization. Training is rare, and safety materials are insufficient. This resonates with Halidinah (2021), who reported that limited budget allocation often prevents public institutions from building sustainable OHS programs. By contrast, private sector organizations often allocate specific budgets for training, audits, and safety equipment Resource constraints not only hinder compliance but also erode workers' confidence in management's commitment to their well-being. Building capacity through training is critical, as Setyoko (2017) noted that well-trained employees are more confident in handling hazards and contribute positively to institutional safety culture.

5. **Monitoring, Evaluation, and Continuous Improvement**

Clauses 9 and 10 of ISO 45001 emphasize the need for performance evaluation and continuous improvement. In the agency, the absence of monitoring mechanisms means that progress cannot be measured, and lessons are not systematically learned. This perpetuates a cycle of reactive management, where improvements occur only after incidents.

Wahyudi et al. (2024) highlighted that hospitals with effective monitoring mechanisms achieved a 94% readiness score for ISO 45001 implementation, suggesting that evaluation is critical to building resilience. By not conducting audits or reviews, the agency misses opportunities for learning and adaptation.

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6. Implications for Public Sector Institutions

The results reflect broader challenges in the public sector, particularly in Southeast Asia, where safety is often overshadowed by service delivery pressures. Institutional culture, resource limitations, and lack of accountability mechanisms contribute to weak OHSMS implementation.

However, public institutions also have the potential to lead by example. By adopting ISO 45001, agencies can demonstrate their commitment to protecting workers, thereby setting standards for private companies and communities. Bridging the identified gaps requires systemic reforms, including policy development, leadership engagement, resource allocation, and institutionalization of monitoring systems.

CONCLUSION

This study assessed the implementation of the Occupational Health and Safety Management System (OHSMS) in one local government environmental agency through the lens of ISO 45001:2018 and gap analysis. The results revealed that the agency is still at an early stage of OHSMS implementation, with substantial gaps across nearly all clauses of the standard.

The most significant weaknesses were found in leadership commitment, worker participation, planning, and monitoring mechanisms. These shortcomings result in a largely reactive approach to occupational health and safety, where actions are taken only after incidents occur rather than as part of a proactive, preventive strategy. Hazard identification and risk assessment are performed informally without documentation, while training and communication are inconsistent. The absence of internal audits, management reviews, and continuous improvement processes further reflects the lack of institutionalization of safety practices.

From a practical perspective, these findings underscore the urgent need for the agency to establish a formal OHS policy and integrate it into its strategic objectives. Leadership should actively demonstrate commitment by allocating resources, setting measurable objectives, and ensuring that safety considerations are embedded in all levels of decision-making. Worker participation mechanisms, such as joint OHS committees, should be developed to enhance inclusivity and accountability. Moreover, structured training programs and documented operational procedures are essential to ensure that safety is not dependent on individual initiative but is instead built into organizational systems.

The implications extend beyond the studied agency. As government institutions often serve as role models for private companies and communities, their failure to implement OHSMS effectively may weaken broader efforts to improve workplace safety culture in society. Conversely, if public institutions succeed in adopting ISO 45001, they can drive positive change by setting examples of good governance, accountability, and protection of workers. This reinforces the notion that occupational safety should not be viewed as a regulatory burden but as an investment in human capital and institutional sustainability.

From an academic standpoint, this research contributes to the relatively limited body of literature on OHSMS implementation in public sector institutions, particularly in Southeast Asia. Previous studies have focused predominantly on manufacturing and healthcare industries, leaving a gap in the understanding of how government organizations adopt and adapt to ISO 45001. By applying a qualitative case study approach, this research provides nuanced insights into the organizational, cultural, and resource-related challenges that shape OHSMS outcomes in the

public sector.

Nevertheless, the study has certain limitations. First, as a single case study, the findings cannot be generalized to all government institutions. The characteristics of the studied agency, including its organizational culture and resource constraints, may differ significantly from those of other institutions. Second, the reliance on qualitative data, while providing depth, may not capture the full extent of compliance levels compared to quantitative assessments involving larger samples. Third, the study focused on the internal practices of the agency without incorporating the perspectives of external stakeholders, such as regulators or community representatives, whose expectations are also relevant to the context of ISO 45001

Future research could address these limitations by conducting comparative studies across multiple government agencies, both within the same country and across different regions. Such research would allow identification of common challenges and contextual variations in OHSMS implementation. Quantitative surveys could complement qualitative approaches to measure compliance levels more systematically. Furthermore, exploring the integration of OHSMS into broader governance frameworks, such as environmental management or quality assurance systems, could provide a holistic view of how public institutions can simultaneously achieve safety, sustainability, and efficiency.

In conclusion, the study demonstrates that significant gaps exist between the current practices of the studied agency and the requirements of ISO 45001:2018. Addressing these gaps requires not only technical adjustments, such as documentation and procedures, but also deeper organizational changes, particularly in leadership, culture, and accountability. By prioritizing OHSMS, public institutions can protect workers, enhance performance, and contribute to building safer societies. While the findings are specific to one case, the lessons learned may inspire broader reforms and highlight the importance of embedding occupational health and safety into the heart of public governance.

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