Manajemen Keselamatan Bongkar Muat Batu Bara di MV. Manalagi Samba

Coal Loading and Unloading Safety Management on MV. Manalagi Samba

Esau Gallardo Jacobo[1*], Carlos Romero Zapata[2]
[1,2] Universidad Marítima y Portuaria de México, Condesa – Mexico

ABSTRAK

Transportasi laut dipengaruhi oleh beberapa faktor seperti adanya sarana atau prasarana yang menunjang dan juga dipengaruhi oleh manajemen yang sangat baik. Sandaran alat-alat seperti *crane* dan derek yang digunakan dalam proses bongkar muat telah diperiksa secara menyeluruh dan berfungsi dengan baik agar tidak menyebabkan risiko bagi pekerja maupun lingkungan sekitar, memudarkan setiap jenis barang memberi tanda peringatan jika ada barang yang bersifat berbahaya atau membutuhkan perlakuan khusus selama proses penanganannya. Penelitian dilaksanakan dengan menggunakan pendekatan kualitatif deskriptif, yang bertujuan untuk memahami berbagai fenomena yang mendalam dengan melalui perspektif partisipan dalam konteks yang alami. Hasil dari penelitian ini yaitu: 1) Optimalisasi pelaksanaan bongkar muat di MV. Manalagi Samba antara lain pengelolaan jadwal yang efisien, pemanfaatan teknologi modern, peningkatan kompetensi tenaga kerja, pemeliharaan peralatan secara berkala, evaluasi prosedur operasional, peningkatan komunikasi antar pihak; dan 2) Penerapan manajemen keselamatan dalam pelaksanaan bongkar muat di MV. Manalagi Samba antara lain identifikasi dan penilaian risiko, penyusunan Standar Operasional Prosedur (SOP), pelatihan dan penyuluhan keselamatan, pengawasan dan pemantauan proses, penggunaan peralatan yang aman dan layak, komunikasi yang efektif, penerapan sistem pelaporan insiden, peningkatan kesadaran budaya keselamatan.

ABSTRACT

Sea transportation is influenced by several factors such as the availability of supporting facilities or infrastructure and is also influenced by very good management. The support of equipment such as cranes and cranes used in the loading and unloading process has been thoroughly checked and functions properly so as not to cause risks to workers or the surrounding environment, fading each type of goods giving a warning sign if there are goods that are dangerous or require special treatment during the handling process. The study was conducted using a descriptive qualitative approach, which aims to understand various phenomena in depth through the perspective of participants in a natural context. The results of this study are: 1) Optimization of the implementation of loading and unloading at MV. Manalagi Samba including efficient schedule management, utilization of modern technology, increasing workforce competence, periodic equipment maintenance, evaluation

of operational procedures, increasing communication between parties; and 2) Implementation of safety management in the implementation of loading and unloading at MV. Manalagi Samba including risk identification and assessment, preparation of Standard Operating Procedures (SOP), safety training and counseling, supervision and monitoring of the process, use of safe and proper equipment, effective communication, implementation of an incident reporting system, increasing awareness of safety culture.

Corresponding Author*:

Name: Esau Gallardo Jacobo
Institution: Universidad Marítima y Portuaria de México, Cuernavaca 5, Col. Condesa, Ciudad de México.
C.P. 06140 – México
Email: covidick@hotmail.com

1. INTRODUCTION

Indonesia is a maritime nation, fundamentally composed of numerous islands spread across the archipelago. With an extensive coastline and vast marine waters, Indonesia possesses significant potential in abundant natural resources. Moreover, a substantial portion of international trade is conducted through maritime routes within Indonesian waters. This positions the maritime sector as a crucial component of the national economy. Indonesia's advantageous geographical location further reinforces its identity as a maritime country. Consequently, the term *maritime nation* is commonly used to describe the Indonesian people, particularly those living in coastal and island regions. A maritime nation is characterized by its vast territorial seas, numerous islands, surrounding marine areas, and a population that is significantly engaged in maritime-related occupations (Nurisshobakh et al., 2018).

It is essential for Indonesia to preserve the sustainability of marine ecosystems and manage its natural resources in a sustainable manner. This includes protecting the country's rich and beautiful marine biodiversity to ensure its conservation for future generations and for the enjoyment of visiting tourists. The maritime sector also plays a vital role in Indonesia's national economy. Major ports such as Tanjung Priok in Jakarta and Tanjung Perak in Surabaya serve as key hubs for maritime transportation and international trade. Indonesia has also implemented various maritime development programs, such as the *Sea Toll* initiative, which aims to enhance inter-island connectivity and optimize the potential of domestic shipping. It is therefore not an overstatement to say that Indonesia's journey toward rediscovering its national identity has been realized; the unity of land and sea has long been an inherent part of the Indonesian collective consciousness (Karso, 2022).

Maritime transportation can function effectively when there is a balance between infrastructure and facilities. Moreover, the success of maritime transport must be supported by sound management and competent human resources, along with the availability of adequate navigational equipment, all of which significantly contribute to the realization of efficient maritime operations.

Shipping companies must also be attentive to the specific needs of each vessel, both while at sea and during port operations. As a specialized service within the maritime transport sector, activities such as handling vessel arrivals and departures, as well as

managing cargo loading and unloading, directly contribute to the provision of goods transportation and facilitate the smooth flow of trade (Hasiholan, 2021). Based on the aforementioned statements, it can be concluded that maritime transportation is influenced by several key factors, including the availability of supporting infrastructure and facilities, as well as the implementation of effective management practices. Competent human resources and reliable navigational equipment also play a crucial role in significantly advancing the development of maritime transport in Indonesia.

The competency standards required for seafarers must align with globally recognized benchmarks. The Standards of Training, Certification and Watchkeeping for Seafarers (STCW) represent an internationally adopted set of qualifications for maritime professionals, as established by the International Maritime Organization (IMO) (Sadly, 2015).

According to Law Number 17 of 2008 concerning Shipping, Article 1 Paragraph 36, a ship is defined as a watercraft of a specific form and type, propelled by wind power, mechanical energy, or other sources of energy, or towed or pushed, including dynamically supported craft, underwater vehicles, as well as floating structures and non-mobile floating buildings.

In addition, Indonesia is known for its warm and hospitable people, attracting visitors from around the world to experience its tourism offerings. From Sabang to Merauke, Indonesia boasts expansive natural panoramas and unique traditions that appeal to tourists, including traditional festivals such as customary ceremonies, regional dance performances, and the renowned *wayang kulit* (Javanese shadow puppetry). As a richly diverse nation, Indonesia comprises various ethnic groups and religions, each embraced and practiced with mutual respect (Harris et al., 2022).

Vessels engaged in loading and unloading operations at ports are required to

prioritize safety, making it essential for all crew members to be familiar with the ship's safety management system. The Occupational Health and Safety Management System (SMK3) is an integral component of an organization's overall management system. It encompasses organizational structure, planning stages, distribution of responsibilities, implementation of activities, work procedures, process flows, and the allocation of resources necessary to develop, implement, evaluate, achieve objectives, and sustain occupational health and safety programs. The successful implementation and execution of SMK3 demand an effective planning process, with clearly defined and measurable outputs (Pangkey et al., 2012).

Safety management is a systematic approach to identifying and mitigating risks, as well as ensuring safety within a working or operational environment. The primary focus of safety management is to protect the lives, health, and well-being of individuals involved in various activities. In the context of shipping or the maritime industry, safety management holds particular importance due to the numerous risks and challenges inherent to operations at sea.

A comprehensive identification of potential hazards and operational risks aboard ships is essential. Risk identification refers to the process of recognizing, understanding, and estimating potential risks within an operational system, equipment, procedures, or work units (Sepang et al., 2013).

Equipment supports such as cranes and derricks used in loading and unloading operations must be thoroughly inspected and confirmed to be in proper working condition to prevent risks to both workers and the surrounding environment. All types of cargo must be clearly labeled with warning signs, particularly for hazardous materials or those requiring special handling, in order to minimize or ideally eliminate potential risks. Risk, in this context, represents a series of challenges that must be addressed. A defining

characteristic of these challenges is the inherent presence of risk in every decision-making process. Although intangible, risk is closely tied to the direction and goals we aim to achieve. These risks can significantly influence our ability to reach those objectives (Qintharah, 2019).

In fulfilling their duties and responsibilities, individuals require a proper and supportive work environment. A safe working environment, when coupled with optimal work performance, can generate outcomes that align with the company's vision and goals. On the other hand, negligence on the part of the company regarding employee safety and security in the workplace can lead to serious consequences (Astari & Suidarma, 2022).

2. RESEARCH METHOD

The research method refers to the procedures or techniques employed in conducting a study. This method must be carefully planned in advance to ensure the research proceeds smoothly and yields data that are accurate, relevant, valid, reliable, objective, and rational (Siregar & Hartati, 2023).

This study employs a descriptive qualitative approach, aiming to gain a deep understanding of various phenomena through the perspectives of participants within their natural context. This approach is chosen because it allows researchers to explore the meanings, perceptions, and experiences of the subjects holistically, and to uncover social realities that are often difficult to explain through quantitative methods.

Data collection was carried out using several techniques, including in-depth interviews, participant observation, and documentation. The interviews were conducted in a semi-structured format to allow the researcher flexibility in exploring informants' views in an open and adaptive manner. Observations were carried out directly at the research site to obtain a

contextual understanding of behaviors, interactions, and social dynamics. In addition, supporting documents such as activity reports, field notes, and institutional archives were also analyzed to enrich the findings.

Informants were selected purposively, taking into account the relevance of their experience and involvement in the issue being studied. The criteria for informant selection were aligned with the research focus to ensure that the data obtained were both in-depth and representative of the study's context.

The collected data were analyzed using a thematic analysis approach, which involves identifying, classifying, and interpreting recurring patterns and key themes that emerge from the data. Thematic analysis was employed to organize research findings based on similarities in the data (Muda, 2025). The analytical process was carried out in several stages, beginning with data transcription, followed by data reduction, categorization, and finally, drawing conclusions.

To ensure data validity, triangulation of both techniques and sources was applied, along with peer discussions and member checking, where preliminary findings were shared with informants for verification.

Through this approach, the study is expected to provide a more comprehensive, contextual, and in-depth understanding of the phenomenon under investigation, while also contributing to the advancement of knowledge and practice in the relevant field.

3. RESULT AND DISCUSSION

The MV *Manalagi Samba* is a Bulk Carrier-type vessel owned by PT. Pelayaran Manalagi. Built in 2003 in the Philippines at Tsuneishi Heavy Industries (Cebu), Inc., the ship is registered under the Indonesian flag and officially listed in Jakarta. It carries the IMO Number 9254501, Call Sign YBPU2, and MMSI 525100268. The vessel is classified by BKI (Biro Klasifikasi Indonesia). In Indonesia, pursuant to regulations issued by the Ministry of Transportation, every ship is required to

obtain certification from a classification body recognized by BKI. This requirement aims to minimize the risk of maritime transportation accidents (Raharjo, 2015).

The MV *Manalagi Samba* has the following dimensions: Length Overall (L.O.A) of 189.99 meters, Length Between Perpendiculars (L.B.P) of 182 meters, Breadth Moulded of 32.26 meters, and Depth Moulded of 17 meters. The vessel has a Gross Registered Tonnage (GRT) of 30,011 tons, a Net Registered Tonnage (NRT) of 17,843 tons, and a Light Ship weight of 8,325 tons. Its cargo hold capacity is 67,756.3 cubic meters for grain and 65,600.3 cubic meters for bale cargo (Pamungkas et al., 2014). A Bulk Carrier is a type of cargo ship specifically designed to transport unpackaged bulk cargo in large volumes. It is commonly used to carry commodities such as cement, coal, and other loose materials. With wide and deep cargo holds, this type of vessel can efficiently transport substantial quantities of bulk cargo. Moreover, it is equipped with efficient loading and unloading systems, which allow for fast and effective cargo operations.

The MV *Manalagi Samba* conducted a voyage from the port of Kota Baru to Tanjung Merpati. After completing cargo loading and unloading operations at the port of Kota Baru without any issues, the vessel proceeded to carry out similar operations at Tanjung Merpati. However, during the loading and unloading activities at Tanjung Merpati, the crew encountered difficulties in executing the operations efficiently.

These challenges presented a significant test for the ship's master and crew, requiring them to manage the loading and unloading process with heightened caution to ensure successful operations. Their goal was to prevent any incidents or accidents that could result in financial loss or serious injury to the crew, thereby maintaining operational safety and efficiency.

Gambar 1. MV. Manalagi Samba

Optimization of Cargo Loading and Unloading Operations on MV *Manalagi Samba*

The optimization of cargo handling operations on MV *Manalagi Samba* can be achieved through a variety of strategies focused on enhancing time efficiency, reducing operational costs, and improving occupational safety. Several key measures that can be implemented include:

1. Efficient Scheduling Management

Developing a well-organized cargo handling schedule is essential to minimize vessel waiting time and ensure a smooth operational flow. This can be achieved through effective coordination between the ship's crew, port operators, and other relevant stakeholders.

2. Utilization of Modern Technology

Employing advanced technology such as logistics management software enables real-time monitoring and regulation of cargo handling processes. The use of modern heavy equipment, such as automated cranes, can also accelerate operations and improve overall productivity.

3. Workforce Competency Enhancement

Providing targeted training to stevedores and cargo handlers is crucial for improving their proficiency in executing tasks. Such training includes safe and efficient loading and unloading techniques, proper use of heavy equipment, and adherence to safety procedures.

4. Routine Equipment Maintenance

Ensuring that all cargo-handling equipment, such as cranes, forklifts, and conveyors are in optimal condition through regular inspection and preventive maintenance is vital. This minimizes the risk of unexpected breakdowns that could delay operations.

5. Operational Procedure Evaluation

Conducting periodic reviews of cargo handling procedures allows for the identification of operational bottlenecks and potential areas for improvement. Insights gained from these evaluations can be used to revise and enhance Standard Operating Procedures (SOPs).

6. Improved Inter-Party Communication

Establishing clear and effective communication among all involved parties including the ship's crew, port operators, and port authorities is essential to prevent coordination errors that could hinder the cargo handling process.

Through these strategic measures, the cargo handling operations on MV. *Manalagi Samba* can be effectively optimized, thereby making a significant contribution to the overall operational efficiency.

Obstacles in Implementing Standardized Cargo Handling Procedures on MV. *Manalagi Samba*

The implementation of safety management during cargo handling operations on MV. *Manalagi Samba* is crucial to ensure a smooth process, protect workers, and prevent material losses due to accidents. The following are key steps that can be implemented:

1. Risk Identification and Assessment

Conduct a comprehensive risk analysis to identify potential hazards during the loading and unloading process, such as the movement of heavy equipment, adverse weather conditions, or human error. Develop mitigation strategies to minimize the likelihood of accidents.

2. Development of Standard Operating Procedures (SOPs)

Establish clear SOPs in accordance with international regulations, such as those from the International Maritime Organization (IMO) and the Safety of Life at Sea (SOLAS) convention. These procedures should cover the use of heavy equipment, traffic control in cargo handling areas, and emergency response protocols.

3. Safety Training and Awareness Programs

Provide regular training for workers on the use of personal protective equipment (PPE), such as helmets, reflective vests, and safety boots. Conduct emergency response drills to ensure preparedness for hazardous situations.

4. Supervision and Process Monitoring

Deploy safety supervisors in cargo handling areas to ensure compliance with SOPs. Utilize technologies such as CCTV cameras for real-time monitoring of operations.

5. Use of Safe and Proper Equipment

Perform regular inspections on loading and unloading equipment, including cranes, forklifts, and conveyors. Avoid using tools or machinery that do not meet established safety standards.

6. Effective Communication

Ensure that all stakeholders, including ship crews and port operators, have access to reliable and immediate communication channels. Use radio systems or visual signals for field coordination.

7. Implementation of an Incident Reporting System

Develop a reporting system that allows workers to report incidents or hazardous conditions without fear of reprisal. Conduct thorough investigations of all incidents to prevent recurrence.

8. Enhancement of Safety Culture Awareness

Promote a culture of safety among all personnel by fostering shared responsibility and awareness of safety values throughout daily operations.

Promoting a safety culture in the workplace can be achieved through safety campaigns, reminder boards, and recognition for workers who actively contribute to maintaining safety standards.

By implementing an integrated safety management system, the loading and unloading operations on MV. *Manalagi Samba* can be conducted in a safer, more efficient manner, and in compliance with international standards. This approach is expected not only to protect the workers but also to uphold the vessel's and the operating company's reputation.

4. CONCLUSION

Optimization of loading and unloading operations on MV. *Manalagi Samba* includes: 1) Efficient schedule management; 2) Utilization of modern technology; 3) Improvement of workforce competency; 4) Regular equipment maintenance; 5) Evaluation of operational procedures; and 6) Enhancement of communication between parties.

The implementation of safety management in the loading and unloading operations on MV. *Manalagi Samba* includes: 1) Risk identification and assessment; 2) Development of Standard Operating Procedures (SOP); 3) Safety training and education; 4) Supervision and monitoring of the process; 5) Use of safe and proper equipment; 6) Effective communication; 7) Implementation of an incident reporting system; and 8) Enhancement of safety culture awareness.

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