Assessment Of Factors Affecting Marine Assets Maintenance Management: A Case Of Tanzania Shipping Company (Tashico)

Eng. Joseph Maricel Shirima & Eng. Anael Mtui

Dar es salaam Maritime Institute (DMI), Dar es salaam, Tanzania.

Email shirimajoseph722@gmail.com/joseph.shirima@tashico.go.tz

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Abstract: *The study focus on the assessment of factors affecting marine assets maintenance management, with the case study of Tanzania shipping company (TASHICO), it also asses the operational state of the marine assets. In achieving objectives of the study, opinions of the maintenance personnel and other staff within Tashico were sampled through structured questionnaires, interview and observation, Maintenance officers and other staffs ranked policy and regulation implementation as first most significant factor among other factors responsible for poor marine assets maintenance management. Other factors found to be highly significant by the maintenance officers are; technological enhancement, financial and resource allocation, human resource development. The study recommended proactive measures to reduce maintenance cost and the occurrence of further destruction of the marine assets.*

Keywords*; Assessment, Maintenance management, Marine assets, Tashico,*

INTRODUCTION

In the realm of the maritime industry, the effective management of marine assets held paramount importance for ensuring operational efficiency, safety, and sustainability. With the dynamic nature of maritime operations and the complexities involved in maintaining marine assets, understanding the factors influencing maintenance management became indispensable. This research aimed to evaluate such factors, particularly within the context of Tanzania Shipping Company (TASHICO) in Tanzania.

The maritime industry, being a vital component of global trade and transportation, heavily relied on the optimal functioning of marine assets. Efficient maintenance management of these assets not only safeguarded investments but also played a pivotal role in mitigating risks, enhancing reliability, and prolonging operational lifespan. However, the effectiveness of maintenance

practices was often contingent upon various internal and external factors, spanning organizational policies, resource allocation, technological advancements, and environmental considerations.

Within the Tanzanian maritime landscape, TASHICO emerged as a significant entity. As a key player in the region, TASHICO faced multifaceted challenges in managing its marine assets efficiently amidst the evolving operational environment and regulatory requirements. Therefore, this research undertook a comprehensive evaluation of the factors influencing marine asset maintenance management within TASHICO, with a focus on identifying critical challenges, assessing current practices, and proposing strategic interventions for enhancing overall performance. By leveraging a case study approach, this research provided valuable insights into the intricacies of maintenance management specific to the Tanzanian maritime industry context.

AIM, aim of this study to find the factors affecting marine assets maintenance management in Tanzania by using Tashico as a case study, with the view of improving marine assets maintenance management

Main Objective

The main objective of this study is to assess the factors affecting marine assets maintenance management in order to improve marine assets maintenance management in TASHICO.

Specific Objective

1. To assess factors affecting marine asset maintenances management at TASHICO
2. To assess the existing maintenance practices employed by Tanzania Shipping Company for its marine assets.
3. To establish the strategies for improvement of marine assets maintenance management in TASHICO.

Research questions

1. What are the factors affecting marine assets maintenance management at TASHICO?
2. What are the existing practices employed by TASHICO for its marine assets?
3. What are strategies for improvement of marine assets maintenance management at TASHICO?

LITERATURE REVIEW

This literature review aims to build a strong theoretical and practical foundation for the study by analyzing academic research, policy guidelines, government reports, and related documents. The chapter begins with theoretical insights relevant to asset maintenance and transitions into a detailed overview of TASHICO's background and its maintenance operations. Following that, the review explores broader topics such as marine asset management practices, the importance of proper maintenance planning, and the various operational and institutional challenges affecting this field. It also includes a review of national policies and legal frameworks that govern marine transport and asset regulation in Tanzania. Empirical studies and related scholarly work from similar environments are also reviewed to identify lessons and gaps in the literature.

Other related studies which have been conducted in Tanzania, the researcher concluded the study by ranking the factors affecting port infrastructure maintenance management by giving Motivation of human resources towards maintenance and inadequate training and development of personnel were ranked as mostly significant factors, showing that they are factors most affecting the infrastructure maintenance management. And the Corruption was ranked as the last factor, number fourteen.

Also, researcher ranked strategies to be implemented so as to improvement of port infrastructure by ranking strategies as follows from the results, advanced technology should be adapted and aged infrastructures should be replaced were factors ranked number one, showing that they are the most effective strategies for improvement. Establishment of training programs to the key staff and personnel responsible should have enough knowledge on maintenance activities were ranked as number two strategies. Establish proper maintenance management including effective policy, strategy, planning and execution was ranked as number three strategy. Regular inspection of the facilities was ranked number four and lastly improvement of data management facilities was ranked as number five strategy.

METHODOLOGY

This study involved the use of a rating scale in finding the factors affecting marine asset maintenance management at TASHICO. The quantitative research method was effective in ranking the factors that were rated by the respondents. Quantitative research was one of the

scientific research projects that involved a specific and well-structured study design from the perspective of the local population in a chosen area (Kothari, 2004). Some of the research methods were participant observation, interviews, document review and questionnaires as presented in (Kothari, 2004). They were used in both quantitative and qualitative research depending on the data being collected.

Targeted population, the targeted population for the research "Assessment of Factors Affecting marine assets Maintenance Management, were including individuals and groups directly involved or associated with marine asset maintenance management within TASHICO. This population encompasses key stakeholders who possess valuable insights and experiences relevant to the research objectives. Maintenance personnel (marine engineers, marine technicians, other technician), operation and logistics officers (operations managers, operation officers, logistics coordinators), management and decision makers (branch managers, dock masters, other management staff) and some other groups of staffs.

Geographical allocation, this research conducted based on operation areas of TASHICO, Mwanza branch (lake Victoria),Kigoma Branch (lake Tanganyika), Kyela branch (lake Nyasa).

Participant, total number of 78 people participated effectively on conducting this study which is equal to 97.5 percentages, out of 80 which was the targeted sample size .Where by fourteen were Tashico officers, four were managers, twelve were marine engineers, twenty seven were technicians, twelve were procurement officers, and nine were operation officers.

Finding

The study composed male and female where by 30.6% of sampled respondents were female while 69.4% were female. Most participants fell within the age range of 30–49 years, suggesting that the workforce is predominantly composed of individuals in their mid-career stage, with considerable experience in the field. On the other hand, the findings indicated that a majority of the respondents possessed educational qualifications below a Bachelor's degree. Specifically, the study found that 85% of the respondents held diplomas, certificates, or vocational training qualifications, while 15% had obtained a Bachelor's degree or higher. This distribution highlights the dominance of technical and vocational education in marine asset maintenance roles at TASHICO, which aligns with the practical nature of the field.

Levelofeducation	Number of respondents	Percentage
Master'sDegree	5	5%
BachelorDegree	10	10%
Diploma	50	50%
Certificates	35	35%
	100	100%

Due to the result, policy and regulatory become most significant factor which affecting marine assets maintenance management, followed by technological enhancements, financial and resource allocation, human resources development.

Policy and regulatory, one of the most significant implications revealed through the findings of

this study is the considerable weakness in the policy and regulatory frameworks guiding marine asset maintenance in Tanzania. TASHICO operate within a regulatory landscape that, while influenced by international standards, often lacks the enforcement power, clarity, and coherence necessary to support robust maintenance management.

Technological advancements play an indispensable role in modern marine asset management at present, TASHICO and other maritime operators in Tanzania face several limitations stemming from outdated systems, manual procedures, and a general lack of digital integration. This has led to inefficient maintenance tracking, delayed response to technical issues, and increased operational costs due to unplanned downtimes.

This study's findings highlight the urgent need for technological transformation within marine maintenance processes. Compared to global industry leaders who employ Computerized Maintenance Management Systems (CMMS), Internet of Things (IoT) devices, and predictive analytics tools, Tanzanian maritime operators are at a disadvantage. Many processes remain paper-based, reliant on human memory, and reactive rather than preventive.

Financial capacity and resource availability play a central role in determining the effectiveness of marine asset maintenance. At TASHICO and similar maritime institutions across Tanzania, insufficient budgeting, inconsistent financial planning, and poor resource allocation have been cited as persistent barriers to achieving reliable and sustainable maintenance operations. The implications of these financial challenges extend beyond operational delays — they affect safety, regulatory compliance, long-term asset value, and the public perception of service delivery.

Human resource development, one of the major issues is the shortage of trained technical

personnel**.**Due to limited recruitment and inadequate training pipelines, many maintenance departments are understaffed and overly reliant on a few experienced individuals. This not only creates workload imbalances but also poses a risk of knowledge loss in the event of retirements or staff turnover. Without a structured human capital succession plan, organizations like TASHICO remain vulnerable to service disruptions and maintenance delays.

Conclusion

The findings of this study have significant implications for the maritime industry, particularly regarding policy development, technological integration, financial planning, workforce training, and environmental sustainability. Implementing the recommendations outlined in this chapter will improve the efficiency, safety, and longevity of marine assets. By adopting proactive maintenance strategies, leveraging technology, and investing in human capital, organizations like TASHICO can enhance their operational effectiveness and contribute to a more sustainable maritime sector.

This study highlights the need for continued collaboration between government agencies, private organizations, and industry stakeholders to develop and implement best practices for marine asset maintenance. Future research will be essential in refining these strategies and addressing emerging challenges in the field. Further studies should focus on longitudinal assessments of maintenance strategies, case studies of successful implementations in similar industries, and the impact of global environmental policies on marine asset management.

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