



Knowledge sharing practices in Tanzanian public institutions focused on the conservation and management of natural resources

Hussein Hassan Buu¹
Prof. Wulystan Pius Mtega²
Dr. Ronald Bernald Tarimo³

¹hussein.buu@tafori.or.tz

¹<https://orcid.org/0009-0006-8488-510X>

²<https://orcid.org/0000-0001-8471-1878>

³<https://orcid.org/0000-0001-6398-7541>

^{1,2,3}Tanzania Forestry Research Institute, ^{1,2,3}Sokoine University of Agriculture, ^{1,2,3}Tanzania

Recommended Reference: Buu, H. H., Mtega, W. P., & Tarimo, R. B. (2025). Knowledge sharing practices in Tanzanian public institutions focused on the conservation and management of natural resources. *African Quarterly Social Science Review*, 2(3), 425-439. <https://doi.org/10.51867/AQSSR.2.3.36>

ABSTRACT

Knowledge sharing is vital for enhancing the efficiency and effectiveness of organizational operations. However, a major challenge facing most public institutions today is the loss of knowledge when skilled or experienced personnel retire or take unexpected leave, which is essential for ensuring continuity and preserving valuable knowledge. However, no studies have explored the knowledge-sharing practices in public institutions based on natural resource management. This study aimed to examine the channels used for knowledge sharing, the factors that influence this sharing, and the challenges that hinder knowledge-sharing practices in public institutions, with a specific focus on the natural resources management and conservation sectors. Based on the organizational conversion (OKC) theory, the study employed a cross-sectional design with a mixed-research approach and utilized both simple random and purposive sampling techniques to select a sample of 113 respondents from the target population of subordinate staff and managerial staff, as key informants, from the Tanzania Wildlife Authority (TAWA) and the Tanzania Forestry Research Institute (TAFORI). Data were collected through questionnaires and interviews, then analyzed using descriptive and inferential statistics in IBM SPSS version 20. Findings indicate that collaboration and informal discussions are the most effective channels, with strong positive beta coefficients and statistically significant effects ($p < 0.05$). The study also highlights technological infrastructure, organizational structure, and leadership support as influential factors with strong statistical significance ($p < 0.05$). However, technological limitations and political interference remain major barriers. Based on the study findings, the study recommends that improving knowledge sharing in these sectors requires investments in technology, promotion of transformational leadership, implementation of strategic policies, and capacity-building programs. Strengthening these elements is crucial for maintaining institutional knowledge and ensuring effective management and conservation of natural resources in Tanzania.

Keywords: Conservation, Knowledge Sharing, Management, Natural Resources, Public Institution

I. INTRODUCTION

In this era, the world focuses on the knowledge economy, which leads knowledge being recognized as one among of the crucial factors of production. Knowledge sharing plays an energetic role in many institutions in improving the exchange of experience and insights that lead to enhanced organizational performance (Ngcobo, 2020). Knowledge sharing is among the essential knowledge management practices that become a crucial element in improving organizational performance through encouraging knowledge access and usage in the workplace (Mahfodh & Obeidat, 2020). In public institutions, knowledge sharing is vital for enhancing the competence and effectiveness of organizational operations, which accelerate to lower costs and improve performance (Mahfodh & Obeidat, 2020).

Over the years, developed countries have recognized the vital role that knowledge sharing plays in public institutions (Charles & Nawe, 2018). In these countries, knowledge sharing has been systematically incorporated into both organizational culture and technological infrastructure, allowing public institutions to adapt more quickly to emerging challenges and demands, leading to modernized operations, innovative services, and increased citizen satisfaction (Fasola & Abimbola, 2023). Tanzania, like other developing countries, has started leveraging technology, promoting cross-organizational collaboration, and fostering a culture of knowledge exchange as strategies for knowledge sharing initiatives to achieve effective and competent work performance. By means of various mechanisms that inspire knowledge sharing in public sectors can foster a culture that not only values access to knowledge but actively



seeks to utilize it for better service results. The different knowledge-sharing practices directly support access and shared knowledge, which improve efficient workplace operations in managing and conserving natural resources. Additionally, effective knowledge-sharing practices are essential for enhancing efficiency across sectors such as healthcare, hospitality, education, and agriculture (Liu & Florkowski, 2021; Mtega & Ngoepe, 2020; Charles & Nawe 2018; Sulaiman et al., 2023).

Among public institutions, knowledge sharing improves access to information necessary for performing various activities based on organizational operations (Ngcobo, 2020). Additionally, Tanzania's complex socio-economic landscape, where recruitment often occurs due to unexpected retirements or leaves of knowledgeable employees, calls for integrated approaches that encourage knowledge sharing among public employees to maintain the organization's functions as before. Titi Amayah, (2013) highlights the importance of fostering a culture of knowledge sharing among employees in public organizations as essential for making an impact in service delivery. In the natural resources conservation sectors, cultivating such a culture can help create collaborative platforms where community members can share insights and experiences with professionals, leading to improved conservation practices and sustainable resource management.

The Natural resources management and conservation sector, as an affiliate of public institutions which offer a wide range of services such as wildlife protection, ecosystem management (including the added value that comes with natural features such as lakes), community education, research on forest and wildlife, and implementation of conservation policies, which can significantly enhance collaborative conservation efforts. Yet, their effectiveness can be diminished by inadequate knowledge-sharing practices among employees in decision-making processes. The public sector faces a unique set of challenges when it comes to sharing knowledge. These challenges include resource constraints, infrastructural limitations, and ineffective knowledge-sharing mechanisms, resulting in the loss of valuable knowledge when employees retire or leave (Ngcobo, 2020). Particularly evident in healthcare settings, knowledge sharing practices empower service providers to deliver timely and accurate information, leading to improved patient care and satisfaction as well as increased operational efficiency and the development of innovative services in the hospitality industry (Asami & Wamae, 2022). Despite this fact, limited studies have been conducted to assess the impact of knowledge management practices on organizational performance in Tanzania's public institutions. Moreover, none has investigated the knowledge sharing practices in public institutions based on natural resources management. Therefore, this paper explores knowledge sharing practices in Tanzanian public institutions, specifically within TAWA and TAFORI, focusing on natural resource management and conservation.

1.1 Research Objectives

- i. Identify types of knowledge used in the natural resources management and conservation sectors.
- ii. Determine formal and informal channels used for sharing knowledge in the public institutions based on the natural resources management and conservation sectors
- iii. Find out the factors that influence knowledge sharing practices in public institutions.
- iv. Investigate the challenges associated with knowledge-sharing practices that hinder conservation practices in related public institutions.

II. LITERATURE REVIEW

2.1 Theoretical Review

2.1.1 The Organizational Conversion (OKC) Theory

The study employed the organizational conversion (OKC) theory. This theory was proposed by Nonaka and Takeuchi in 2005. It views the interaction process of tacit as well as explicit knowledge as key in addressing knowledge management includes knowledge sharing. This highlighted on scenario where senior workers and experts share knowledge with junior workers and new candidates. The theory provides a broader framework for understanding how knowledge is created, shared, and utilized within organizations. Moreover, the theory expands on the SECI model by incorporating additional elements that provide a broader context for knowledge creation within organizations by including the knowledge conversion process, the concept of Ba (shared context), and factors influencing KM such as organization culture, technological infrastructure, and leadership commitment (Bromiley & Rau, 2016). The theory provides a useful foundation for examining types of knowledge, knowledge sharing practices and factors influence knowledge sharing practices in public organizations, especially in Tanzania Wildlife Authority and Tanzania Forestry Research Institute.



2.2 Empirical Review

2.2.1 The Types of Knowledge used in the Natural Resources Management and Conservation Sectors

The management and conservation of natural resources heavily rely on various forms of knowledge that enhance decision-making, stakeholder engagement, and sustainable practices. This synthesis delves into the primary types of knowledge used in the natural resources management and conservation sector. The study conducted by Gosselin et al., (2018) indicated that scientific knowledge is essential for understanding ecosystem dynamics, climate change, and the efficacy of management strategies. However, Mairiga and Ibrahim, (2021) exposed that indigenous and traditional ecological knowledge (TEK) play a pivotal role in natural resource management. Indigenous knowledge encompasses the understandings and practices cultivated by local communities over generations. This knowledge includes rituals, customary laws, landscape classification, and ecological indicators embedded in local culture, allowing for effective resource stewardship tailored to specific environmental contexts. Furthermore, Zoogah et al. (2020) and Zulfadrim et al. (2019) argued in their studies, experiential knowledge plays a major role in natural resources management. As understanding derived from the direct experiences of individuals and communities interacting with their environments. This type of knowledge is particularly valuable in adaptive management frameworks, which prioritize learning and flexibility in response to ecological changes. Mostly of studies are focusing on types of knowledge utilized in managing natural resources other countries, so that this study was conducted to identifies specific types of knowledge used in managing and conserving natural resources in Tanzania context particularly in TAWA and TAFORI.

2.2.2 The Knowledge Sharing Channels in Public Institutions

Studies indicate that public institutions adopt various knowledge-sharing practices, ranging from formal to informal practices. Navimipour and Charband (2016) described social networks, online communities, instant messaging, job rotation, and multinational projects as the mostly used channels of knowledge sharing in public sectors. Additionally, Mtega et al. (2013) highlight the utilization of community networks and local forums as vital channels or practices for disseminating knowledge, particularly in rural communities. Moreover, Helander et al. (2022) emphasize the significance of social learning and collaborative platforms in facilitating quicker knowledge transfer in an organization. In parallel, Fulk and Yuan (2013) elaborate on enterprise social networking systems that enhance the motivation and capability for knowledge sharing by enabling social draws and reducing barriers associated with expertise location. However, Rusilowati et al. (2023) indicates that when effective channel used, the knowledge is actively shared and facilitates decision-making and problem-solving capabilities, thus driving service quality. Moreover, Lee et al. (2021) indicate that effective knowledge sharing practices directly influence organizational performance through fostering innovation and adaptability. These previous studies revealed knowledge sharing channels but have a knowledge gap on identifying formal and informal practices as well as characterizing on methodological gap in data analysis by using linear regression to determine the significance of each channel in sharing knowledge based on natural resources management and conservation. This gap positions the study to assess effective formal and informal channels in the natural and conservation sectors.

2.2.3 The Critical Factors for Enhancing Knowledge Sharing Practices in Public Institutions.

Knowledge-sharing practices are crucial for enhancing the efficiency and effectiveness of public organizations, particularly in the natural resource management and conservation sectors. Studies indicate that knowledge sharing can significantly improve service delivery by fostering awareness and engagement among public sector employees (Helander et al., 2022). In examining critical factors that enhance knowledge-sharing practices in public organizations in Tanzania, previous studies have demonstrated factors that play a significant role in facilitating knowledge sharing in the public sector. Key elements such as leadership commitment, staff motivation, and organizational trust have been identified as essential for enabling effective knowledge sharing (Abayo 2023; Shokia 2024). Other studies suggest that effective leadership promotes collaboration and reduces barriers to knowledge transfer among employees (Rusilowati et al., 2023; Ballesteros-Rodríguez et al., 2020). Additionally, an organizational culture that prioritizes trust and openness can significantly boost knowledge-sharing behavior (Upadhyay, 2023). Research reveals that enhancing workplace environments to facilitate knowledge sharing requires not only structural reforms but also considerable changes in organizational culture (Yami & Ajmal, 2019). Moreover, technological advancements, especially in digital capacity, play a vital role in facilitating knowledge sharing in public organizations globally, including Tanzania. This digital transformation has highlighted both the opportunities and challenges faced by public organizations in implementing efficient knowledge-sharing practices (Shao et al., 2023). Inadequate studies are focusing on factors influencing knowledge sharing in the public sector, which indicates a critical gap in the literature and a need for research that demonstrates the key factors influencing knowledge sharing in the natural resource management and conservation sectors as public institutions.



2.2.4 The Challenges Hindering Knowledge Sharing Practice in Public Institutions

Despite the recognized benefits of sharing knowledge, public institutions, including natural resources and conservation sectors, face numerous challenges to knowledge-sharing practices, as indicated in different studies. Mutage and Dewah (2022) pointed out that knowledge hoarding, lack of motivation among employees, and inadequate leadership support are the barriers that face knowledge sharing practices in an organization. Fear of job security, insufficient trust among employees, time, and an organizational culture resistant to open communication led to barriers in knowledge-sharing practices (Nguyen et al., 2020). In the Tanzania setting, Mtega et al. (2013) noted that geographical and infrastructural constraints often limit effective knowledge sharing, particularly in rural areas where access to information may be restricted. Thus, these previous studies had lack of empirical data to address challenges in knowledge sharing practice faced by employees in public institutions, especially those based on managing natural resources. Therefore, this study examined the key challenges that hinder knowledge-sharing practices and affect public service delivery.

III. METHODOLOGY

3.1 Description of the Study Area

The study was conducted at the Tanzania Wildlife Authority (TAWA) and the Tanzania Forestry Research Institute (TAFORI) in Morogoro Municipal Council. These institutions were deliberately selected as representatives of public sector institutions where limited studies have been conducted on knowledge management practices, and none have investigated knowledge sharing in public institutions based on the natural resources management and conservation sector. Moreover, study areas played a noteworthy role in managing natural resources through ecosystem management, wildlife protection, community education, and forestry research, as well as building awareness among communities on forest and wildlife management (Caro & Davenport, 2016; Tanzania Forestry Research Institute, 2021). Possibly, due to their main functions of conducting forestry research for TAFORI as well as controlling and protecting wildlife in all Tanzania's reserve parks for TAWA, thus, it is worth investigating, where no related studies have been conducted in this context.

3.2 Research Design

The study adopted a cross-sectional design with a mixed research approach. A cross-sectional design allows data to be collected from a large group at a single point in time (McCombes, 2019). Moreover, the study used quantitative and qualitative methods as a mixed research approach to neutralize or cancel biases of a single research approach.

3.3 Population and Sample Size

The population of this study was 567 employees, where 149 were from TAFORI and 418 employees from TAWA. Yamane's formula (Sathyannarayana et al., 2024) was employed to calculate the sample size for the study from the total population.

$$n = N / (1 + N(e^2))$$

Where:

“n” is the sample size

“N” is the population size

“E” is the level of significance

“1” is the constant

Therefore, from the two institutions,

$$N = 567,$$

$$E = 0.084^2.$$

$$n = 567 \div (1 + 567(0.084)^2)$$

$$n = 113.3829470474$$

Thus, the study sample consisted of 113 respondents.

To ensure representation of each subgroup in the sample proportionate to their size in the total population, the following formula was used:

$$n_i = N_i / N \times n$$

Where:

n_i = sample size for subgroup

N_i = population size of subgroup

N = total population size

n = total sample size

For TAWA;



$$n_i = 418/567 \times 113.$$

Thus,

$$n_i = 83.3$$

For TAFORI;

$$n_i = 149/567 \times 113.$$

Thus,

$$n_i = 29.7$$

Therefore, the approximate sample sizes for TAWA were 83 and TAFORI 30

A simple random sampling technique was employed to select 113 respondents as subordinate staff, with 83 respondents from TAWA and 30 respondents from TAFORI. This technique was chosen to enhance the credibility and generalizability of the collected data by reducing selection bias. Additionally, purposive sampling was utilized to select managerial staff members as key informants, as they provide in-depth and relevant insights for this study.

3.4 Data Collection

Data was collected through questionnaire and interview methods, using both online and printed forms. Online questionnaires were favored due to the diverse locations of respondents. The questionnaire with both closed and open-ended questions was administered to 113 respondents (Subordinate staff). Face-to-face and telephone interviews were also conducted with 5 key informants from managerial staff at TAWA and TAFORI to gather deeper insights. These methods were selected because questionnaires facilitate the collection of large amounts of data in a short period, while interviews were chosen because they allow the gathering of deeper qualitative insights into knowledge sharing.

The respondents identified various knowledge types, factors, and challenges, with their frequency assessed by summing scores from the responses. To measure knowledge-sharing channels, factors, and channels for knowledge sharing, multiple response was used. Moreover, multiple linear regression analysis was used to establish statistical significance, following methods from Mwalukasa (2022). Constructs with significant scores ($p < 0.05$) indicate strong potential.

3.5 Data Analysis

Data collected in this study were statistically analyzed with the aid of IBM SPSS, where quantitative data from the questionnaires were analyzed using the Statistical Package for Social Science (SPSS) version 20 to calculate means, frequencies, and percentages as statistical measures. Qualitative data obtained from the interviews were analyzed using content analysis to identify key themes. For quantitative data, a descriptive and inferential statistic, such as a multiple linear regression model, was used to analyze the knowledge sharing channels, the critical factors influencing knowledge sharing practices, and challenges hindering knowledge sharing practices.

Accordingly, descriptive and linear regression analyses were employed in this study. Multiple linear regression was used to test the relationship between factors and knowledge-sharing, Ks channels, and access to knowledge related to management and conservation of natural resources. Hence:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_{11} X_{11}.$$

Where

Y = conservation efforts index score

β_0 = Interception

$\beta_{1...11}$ = Regression coefficients

$X_{1...11}$ = knowledge sharing channel items.

The results were presented using tables and charts for the quantitative data. Summaries and direct quotations for the qualitative findings. Throughout the study, ethical guidelines were strictly followed to ensure respectful treatment of participants.

3.6 Reliability Analysis

To ensure the validity and reliability of the collected data, the research tools were pre-tested at the Tanzania Forest Service Agency (TFS) Morogoro office, which has similar conditions to those of the study areas. Additionally, to ensure the internal consistency of the questionnaire items, the correlation among them was calculated using Cronbach's Alpha. The values of Cronbach's alpha were found to be 0.80 for KS channels, 0.82 for factors, and 0.78 for challenges, indicating good internal consistency and reliability for the instruments as recommended by Pallant (2020). After the pre-testing process, the data collection tools were modified.



3.7 Ethical Consideration

The study adhered to ethical standards by providing verbal informed consent to participants about the purpose of the research, maintaining participants' confidentiality, securing approval from relevant institutional authorities, with all external views to avoid plagiarism.

IV. FINDINGS & DISCUSSION

4.1 Findings

4.1.1 Demographic Profile of Respondents

The study requested respondents to provide socio-demographic data, which has been used to determine their composition by sex, age, level of education, and work experience. This data was necessary to identify the study's sources. Furthermore, this type of data is fundamental for analyzing and interpreting the findings on the main variables of the study. The data are summarized in Table 1.

Table 1

Demographic Information of Respondents

Demographic Information of Respondents	Respondents Information	Frequencies (F)	Percentage (P)%
Sex	Male	75	66.4
	Female	38	33.6
Age	20-24	5	4.4
	25-29	13	11.5
	30-34	22	19.5
	35-39	31	27.4
	40-44	22	19.5
	45-49	14	12.4
	50 and above	6	5.3
Education Level	Certificate	6	5.3
	Diploma	24	21.2
	Bachelor's Degree	61	54.0
	Master's Degree	19	16.8
	PhD	3	2.7
Institution	TAWA	82	72.6
	TAFORI	31	27.4
Work Experience	Less than 1 year	12	10.6
	1-5 years	30	26.5
	6-10 years	29	25.7
	More than 10 years	41	36.3

The study collected demographic information from 113 respondents in the natural resources management and conservation sectors (TAWA & TAFORI). Among the participants, 75 (66.4%) were male, and 38 (33.6%) were female. Age distribution showed a predominance of respondents aged 35 to 39 (27.4%), followed by those aged 30 to 34 and 40 to 44 (19.5%). The study also assessed education levels. It found that 61(54.0%) respondents had a bachelor's degree, 24(21.2%) respondents held a diploma, 19(16.8%) respondents had a master's degree, 6(5.3%) respondents had a certificate, and 3(2.7%) respondents held a PhD. This indicates that most participants had at least a bachelor's degree. Lastly, working experience was assessed, with 41(36.3%) respondents having over 10 years of experience, 30(26.5%) respondents with 1 to 5 years, 29(25.7%) respondents with 6 to 10 years, and 12(10.6%) respondents having less than 1 year of experience.

4.1.2 The Types of Knowledge used in the Natural Resources Management and Conservation Sectors.

The study identified the types of knowledge that are applied in the natural resources management and conservation sectors. That knowledge is used in performing different activities related to the organization's functions, based on managing and conserving natural resources in Tanzania. The study findings are summarized in Figure 1.

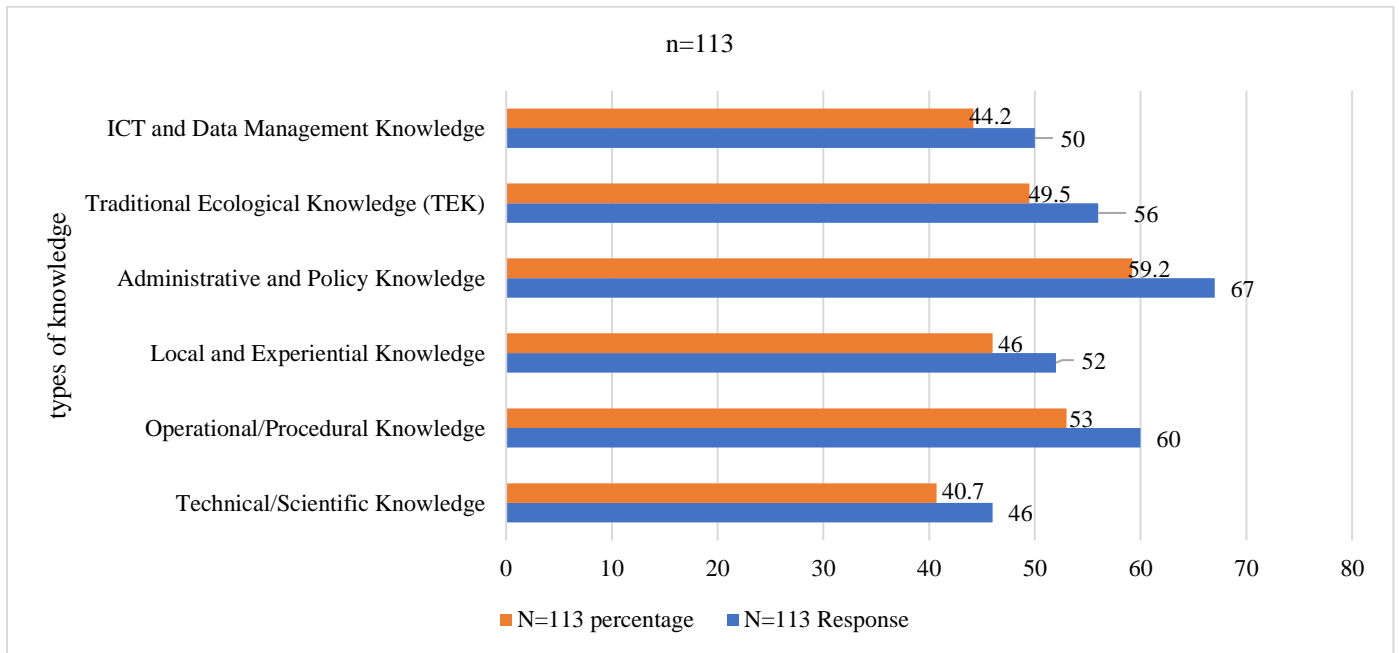


Figure 1
Types of Knowledge

Figure 2 presents the types of knowledge needed and utilized in the natural resources management and conservation sector, including administrative and policy knowledge, indicated by 67(59.2%) respondents, operational knowledge 60(53.0%), and traditional ecological knowledge by 56(49.5%). Other respondents indicate ICT and data management as types of knowledge, as cited 50(44.2%). Also, 46(40.7%) respondents showed that technical or scientific knowledge was utilized in the natural resources’ conservation practices. These findings revealed a multidimensional knowledge environment in Tanzania’s natural resource management. While administrative and policy, procedural, and indigenous knowledge types dominate, indicating opportunities for capacity building, improved integration of research into practice, and expanded use of technology.

4.1.3 The Knowledge Sharing Channels used in Public Institutions related to the Management and Conservation of Natural Resources

The study determined the knowledge sharing channel, which relies on formal and informal channels used to access and exchange knowledge related to natural resources management and conservation sectors. The study also assessed the significant channels in enhancing conservation efforts. The study findings are summarized in Figure 2.

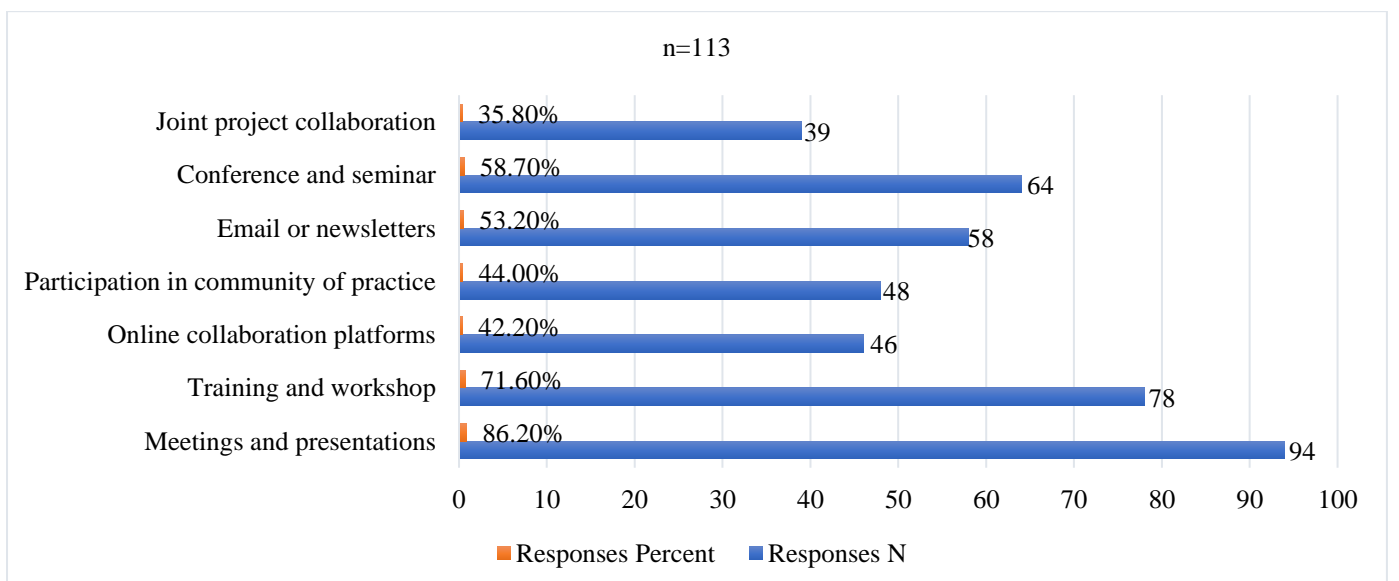


Figure 2
Formal Knowledge Sharing Channels Adopted in Public Institutions Rely on Management and Conservation of Natural Resources



The results in Figure 2 showed that the most commonly used formal channels for knowledge sharing in TAWA and TAFORI, as public institutions, are meetings and presentations, with 94(86.2%) indicating their use. Other popular practices are training and workshop which scored 78(71.6%), conferences and seminar 64(58.7%), and email or newsletters 58(53.2%). Additional channels reported by respondents include participation in the community of practice 48(44.0%), online collaboration platforms 46(42.2%), and joint project collaboration 39(35.8%) as formal channels employed to share knowledge in these institutions. These findings revealed that meetings, workshops, conferences, and publishing newsletters are the dominant formal channels in use for knowledge sharing in public institutions.

Table 2*Informal Practices Employed in Knowledge Sharing in Public Institutions*

Informal knowledge sharing practices	Responses		Percent of Cases
	n=113	Percent	
Casual conversations or discussions	79	25.2	75.2
utilize social media platforms	69	22.0	65.7
Peer-to-peer mentoring	73	23.3	69.5
Tea or lunch meetings	35	11.2	33.3
Storytelling	57	18.2	54.3

The findings showed the common informal practices employed in knowledge exchange in public institutions. The results indicate that 79(75.2%) respondents use casual conversations or discussions, 73(69.5%) respondents engage in peer-to-peer mentoring, 69(65.7%) respondents utilize social media platforms, 57(54.3%) respondents rely on storytelling, and 35(33.3%) respondents participate in tea or lunch meetings as informal practices employed in knowledge sharing in public institutions. The findings determined that casual conversations and social media platform utilization are the formal practices that most employees engaged in for knowledge sharing in public institutions.

Regression Results on Effective Knowledge Sharing Practices in Enhancing Service Delivery : To statistically validate respondents' views on significant channels, multiple linear regression analysis was conducted to examine the correlation of meeting and presentation, training and workshop, online collaboration platform, community of practice, seminar and conferencing, joint project collaboration, causal conversation, peer mentoring, as well as storytelling in exchange knowledge related to natural resources management and conservation efforts.

Table 3*Regression Results for Knowledge Sharing Practices*

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.371	.343		3.993	.000		
	Meetings and presentations	.038	.108	.034	.348	.728	.851	1.175
	Training and workshop	.028	.126	.024	.220	.826	.681	1.468
	Online collaboration platforms	-.082	.104	-.082	-.783	.436	.769	1.301
	Participation in a community of practice	.172	.110	.163	- 1.570	.120	.778	1.286
	Email and newsletters	.029	.127	.025	.231	.765	.779	1.314
	Conference and seminar	-.072	.103	-.069	-.705	.483	.883	1.132
	Joint project collaboration	.413	.112	.373	3.694	.000	.817	1.223
	Casual conversations or discussions	.244	.109	.212	2.236	.028	.927	1.079
	Utilize social media platforms (e.g., Slack).	-.105	.108	-.097	-.967	.336	.825	1.212
	Peer-to-peer mentoring	.065	.125	.059	.520	.604	.641	1.560
	Tea or lunch meetings	-.061	.106	-.054	-.575	.566	.947	1.056
Storytelling	.025	.099	.026	.255	.799	.824	1.214	

Multiple R=.406, R Square=.165, Std. Error of Estimate=.506, Durbin-Watson=1.822, Sum square (Regression =5.058, Residue=25.609), Mean square (Regression =.460, Residue=.256) F= 1.796, df (Regression=11, Residue=100) p= 0.045

The result showed the variance inflation factor (VIF) ranged from 1.05 to 1.56, indicating no multicollinearity issues. The correlation coefficient (R) was 0.406, suggesting a moderate relationship between the independent variables and sharing knowledge related to organizational operations within the natural resource management sector. Knowledge



sharing channels, both formal and informal, play a crucial role in facilitating knowledge exchange. Joint project collaboration showed a strong positive significance ($\beta = .373, p = .000$), indicating increased knowledge sharing in conservation matters. Casual conversation also had a significant beta value of ($\beta = .212, p = 0.028$). However, other variables, including meetings, training, online collaboration, and social media engagement, were not statistically significant ($p > 0.05$) (Table 3).

4.1.4 The Factors Influencing Knowledge Sharing Practices Among employees in public institutions related to the Management and Conservation of Natural Resources

The study examined the key factors influencing knowledge-sharing practices among employees in the natural resources management and conservation sectors. Data were collected from 113 respondents across various departments in TAWA and TAFORI. The findings are presented in Figure 3.

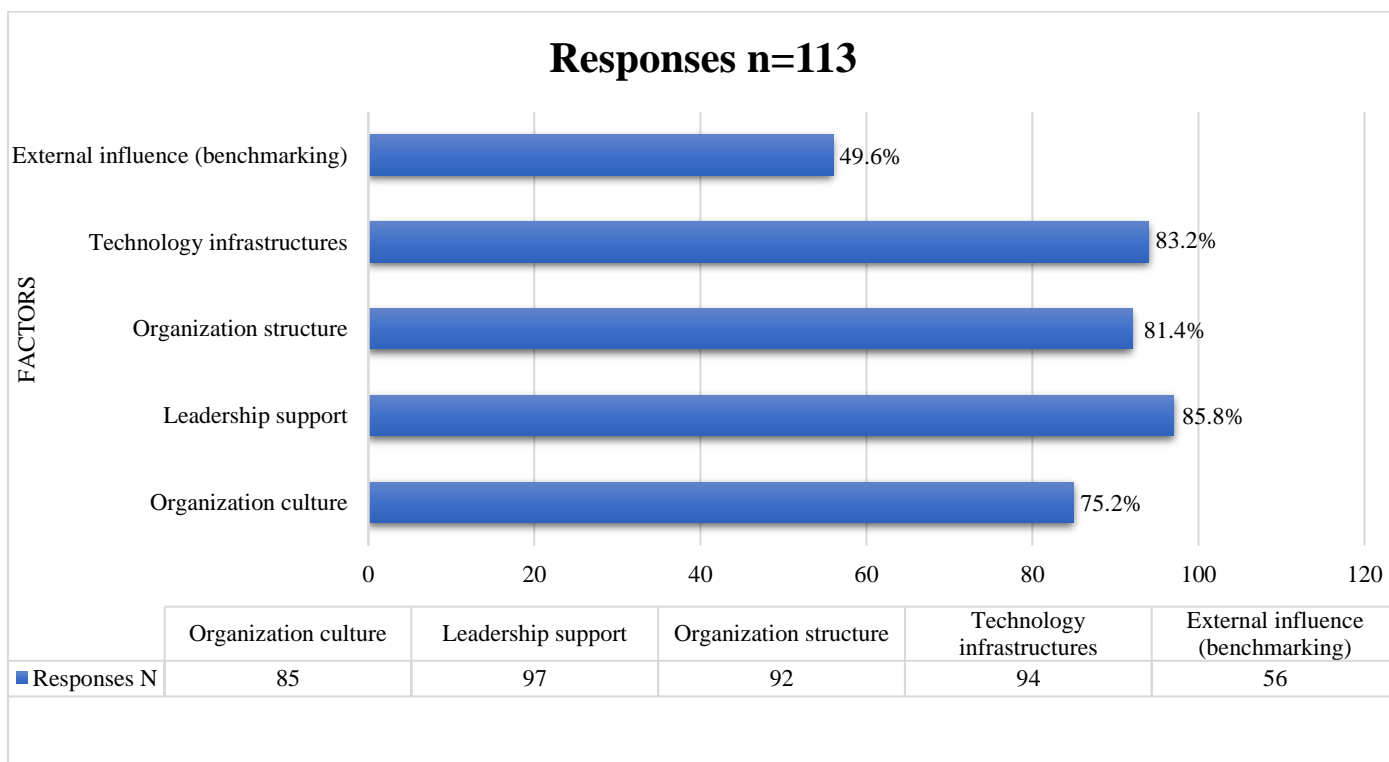


Figure 3
The Factors Influencing Knowledge Sharing Practices among Employees in Public Institutions Related to the Management and Conservation of Natural Resources

The findings in Figure 3 showed the common factors that influence knowledge exchange in public institutions. The results indicate that 97(85.8%) respondents agreed on leadership factor, 94(83.2%) respondents indicated technological infrastructure, 92(81.4%) respondents suggested organization structure, 85(75.2%) respondents reported on organizational culture. External influences, such as government policy or donor agendas, were acknowledged by 56 respondents (49.6%) as enhancing knowledge-sharing practices in public institutions. The findings determined that leadership support and technological infrastructure play a major role in influencing knowledge sharing practices in public institutions.

Regression results of factors influencing knowledge sharing practices in public organizations: Multiple linear regression was performed to examine factors that influence knowledge sharing in TAWA and TAFORI, as public institutions rely on natural resources management. The multiple regression was conducted to examine the relationship of leadership support, organizational culture, technological infrastructure, and organizational structure in knowledge sharing. Key note: Multiple R=.571, R Square= .326, Std. Error of Estimate= .1868, Durbin-Watson=2.121 Sum square (Regression =1.806, Residue= 3.735), Mean square (Regression = .361, Residue= .035) F= 10.347, df (Regression=5, Residue=107) p= 0.000

**Table 4**

Regression Results for Factors Influencing Knowledge Sharing Practices in Public Organizations.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.609	.123		4.957	.000		
	External influence	.040	.038	.091	1.058	.293	.855	1.169
	Technological Score	.229	.082	.267	2.804	.006	.695	1.439
	Organizational structure Score	.193	.074	.227	2.592	.011	.824	1.213
	Organizational culture score	.023	.089	.027	.264	.792	.604	1.655
	Leadership support	.143	.072	.195	1.978	.050	.650	1.538

The result showed that the variance inflation factor (VIF) ranged from 1.12 to 1.16, which is less than 10, implying that the data have no multicollinearity problems. The results indicated that the correlation coefficient (R) is 0.571. This suggests a moderate relationship between identified factors and knowledge sharing practices. This finding highlights the significant factors that influence knowledge sharing practices in public sector institutions. The findings revealed that technological infrastructure was a strong and significant factor that influenced knowledge-sharing practices. The variable had a positive beta of ($\beta = .267$), and it was statistically significant ($p = 0.006$). This indicates that the presence of ICT infrastructure, such as databases, intranets, and digital platforms for sharing information, plays a major role in enhancing knowledge sharing. Moreover, the beta value for organizational structure was ($\beta = .227$), which was positive and statistically significant ($p = 0.011$) (Table 4). This indicates that less hierarchical arrangements are proving more conducive to rapid knowledge dissemination in a workplace. Also, leadership support had a beta value of ($\beta = .227$), and was statistically significant of ($p = 0.050$). However, other factors such as organizational culture and external influences did not have a strongly statistically significant impact on knowledge sharing practices, which scored ($p > 0.05$) (Table 4).

4.1.5 The Challenges Associated with Knowledge Sharing that hinder Natural Resources Management and Conservation Efforts.

The study also assessed the challenges associated with knowledge sharing in public institutions that hinder the natural resources management efforts. Multiple linear regression was performed to identify the most statistically significant challenges that affect conservation efforts in TAWA and TAFORI. The regression results are indicated in Table 5 below. Key note: Multiple R=.361, R Square=.130, Std. Error of Estimate=.501, Durbin-Watson=1.625 Sum square (Regression =3.874, Residue= 25.928), Mean square (Regression = .430, Residue= .252) F= 1.710, df (Regression=9, Residue=103) $p=0.096$

Table 5

Regression Analysis for the Challenges Associated with Knowledge Sharing that Hinder Natural Resources Management and Conservation Efforts

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.798	.405		4.437	.000		
	Lack of priority in knowledge-sharing	.045	.106	.042	.421	.675	.844	1.185
	Worry about being replaced.	.023	.107	.021	.214	.831	.856	1.168
	Shortage of time for participating in knowledge-sharing practices	.103	.103	.099	.998	.320	.863	1.159
	Lack of trust or open communication	-.063	.103	-.060	-.609	.544	.881	1.135
	Resistance to sharing knowledge	-.250	.108	-.242	-2.328	.022	.784	1.275
	Lack of incentives or recognition for sharing knowledge	-.030	.101	-.029	-.294	.769	.876	1.142
	Organizational silos	-.129	.115	-.109	-1.124	.264	.904	1.106
	Technological limitations (ineffective tools or platforms)	.242	.104	.227	2.336	.021	.898	1.114
	Poor leadership support	.085	.123	.069	.696	.488	.858	1.165



The result showed that the variance inflation factor (VIF) ranged from 1.10 to 1.18, which is less than 10, implying that the data have no multicollinearity problems. The results indicated that the correlation coefficient (R) is 0.361. This suggests a moderate relationship between knowledge sharing challenges and the natural resources management and conservation efforts in TAWA and TAFORI. This finding highlights the significant challenges of knowledge sharing practices that hinder natural resources management and conservation efforts. The findings revealed that technological limitations were a strong and significant hindrance to natural resources management and conservation efforts. The variable had a positive beta of ($\beta = .227$), and it was statistically significant ($p = 0.021$).

This indicates that the absence of technological infrastructures, such as the internet or information sharing platforms, can diminish the quality and efficiency of service delivery in public institutions. Similarly, resistance to sharing knowledge was another challenge ($\beta = .242$, $p = 0.022$) (Table 5). This indicates that both leadership and political influence may become obstacles when they resist the sharing of particular knowledge for their own interest. However, other variables such as Lack of priority in knowledge-sharing, Worry about being replaced, meetings and presentations, Shortage of time for participating in knowledge-sharing practices, Lack of trust or open communication, Lack of incentives or recognition for sharing knowledge, Organizational silos, Poor leadership support showed does not have a statistically significantly hinders natural resources management and conservation efforts which score ($p > 0.05$) (Table 5).

4.2 Discussion

4.2.1 The Types of Knowledge used in the Natural Resources Management and Conservation Sectors

The findings of this study determine the types of knowledge needed and available in supporting the management and conservation of natural resources among TAWA and TAFORI as public institutions, based on the management and conservation of the natural resources sectors. The most recognized and utilized knowledge type is administrative and Policy Knowledge. This suggests that understanding of policies, strategic plans, and regulatory frameworks plays a critical role in natural resource management. The dominance of this knowledge type may reflect the structured and policy-driven nature of public environmental institutions. But this contradicts the study conducted by Francis (2018), which indicates that scientific knowledge plays a crucial role in managing and conserving natural resources, for the reason that this knowledge facilitates evidence-based decision-making and policy formulation. Traditional Ecological Knowledge (TEK) follows as the second most reported, which highlights the growing appreciation for community-based and indigenous knowledge in managing forests and wildlife. This finding is similar to the study conducted by Mairiga and Ibrahim (2021) that demonstrated acknowledging and incorporating indigenous perspectives into resource management practices not only enhances ecological resilience but also empowers local communities. Moreover, Operational/Procedural knowledge is close behind (53%) of respondents acknowledging its importance. This type includes standard operating procedures, reporting systems, and enforcement protocols used in everyday fieldwork at TAWA and TAFORI. This finding is supported by interview responses, one of which said

"... We worked under guidelines and procedures that direct us in different activities of managing and conserving natural resources such as wildlife at the fieldwork..."

The findings indicate a balanced but varied use of different types of knowledge in Tanzania's natural resource management. Traditional, procedural, and administrative knowledge seem to be the most prominent, while scientific and digital knowledge are present but could be better integrated. These insights highlight the importance of developing multi-knowledge systems that connect traditional practices with modern scientific methods and ICT-based approaches to improve sustainable and inclusive resource management.

4.2.2 The Knowledge Sharing Channels used in Public Institutions Related to the Management and Conservation of Natural Resources

The findings of this study explore the knowledge-sharing channels adopted by employees. The results showed that the employees in public institutions engaged in various formal and informal practices in the knowledge sharing process. The descriptive statistics result from 113 respondents from TAWA and TAFORI finding the channels that used mostly by employees in sharing knowledge are meetings, training and workshop, due to the high influence of leadership in promote knowledge sharing among employees by allowing them to present their technical reports in internal meeting and encourage employees by give them permission on attend the short and long-term training to acquire new skills or develop their career.

Furthermore, to statistically validate the correlation of these channels of sharing knowledge related to management and conservation efforts, multiple linear regression analysis was conducted. Regression analysis confirmed that joint project collaboration has a strongly positive effect on sharing knowledge related to the management and conservation of natural resources. This indicates that engaging in collaboration activities can enhance access to related knowledge based on organizational operations that lead to improved natural resources management. Thus, participation in collaborative work can accelerate efficiency and effectiveness in the management and conservation of natural



resources. This implies that the employees who collaborate on a project or work can easily adopt the new skills and insights that enable them to operate the related work in the respective institution. To support it respondent from the interview argued that

“... also, I acquired the new knowledge from international partners who collaborated in some research projects, but now I used the skills to operate my assigned task...”

This contradicts previous studies, including Mohd Rasdi and Tangaraja (2022) exposed that mentoring programs are an essential channel for facilitating the transfer of knowledge and skills among professionals in the public sector. Also, it differs from Navimipour and Charband (2016) who recommends online communities and job rotations as essential channels in enabling knowledge exchange across the public sector, which accelerates efficiency through utilizing shared knowledge related to the organizational activities.

Moreover, the casual conversation identified was statistically significant. This represents that the informal channel also significantly contributes to enhancing conservation practices. This implies that informal conversation in the workplace may influence efficacy in natural resource management. This is evidenced by Upadhyay (2023) and Aljuwaiber (2016) revealed that community of practice (CoP) and oral communication are the powerful and widespread collaborative channels that are most preferred due to their convenience, ease of consultation, and because it is believed to be rich in direct knowledge transfer. Moreover, it became the relevant channel that facilitates discussion based on management and conservation practices, for the reason that it removes bias in terms of position rank by allowing anyone to share knowledge with anyone at any time in a workplace or after, which can facilitate knowledge exchange on solving problems or decision-making in service delivery provision. To confirm this result, the respondents were asked in the interview, and it was noted that

“... I tried before to discuss with someone who knows more about what I am going to do in the decision-making scope...”

These findings are similar to the previous study conducted by (Jobson et al. 2019) Mentoring programs play a crucial role in skill transfer among professionals to enhance service quality in public institutions, particularly in healthcare.

In contrast, other variables such as meetings and presentations, training and workshops, online collaboration, community of practice participation, publishing email and newsletters, conference and seminar participation, social media engagement platforms, peer-to-peer mentoring, tea or lunch meetings, and storytelling showed does not have a statistically significantly in sharing knowledge related to organization operations which score ($p > 0.05$). However, in employees' views rated with a high score. This can be due to the lack of timely practical implication of knowledge that acquired from those variable because may occur the skills gained from seminar or conference became irrelevant at the moment to fix a particular situation that concerns with management and conservation of natural resources, that why, findings argued although most of respondents in descriptive analysis preferred engaged on those variables but did not direct influencing knowledge sharing at workplace in these institutions.

4.2.3 The Factors that Influence Knowledge Sharing Practices in Public Institutions

This study examined key factors influencing knowledge-sharing practices in public organizations. Descriptive results showed that leadership support, technological infrastructure, and organizational structure were the most influential. To statistically validate the influencing factors, the multiple linear regression analysis was conducted and confirmed that technological infrastructure had the strongest and most significant effect. The implement digital tools may influence knowledge sharing as consistent with interview responses highlighting ICT tools like intranet and email are essential

“... in this era of digital world, the technology such as internet facilitate much information sharing, where due to the internet our employees use social media, email and other online platforms in information exchange...”

These findings are consistent with prior studies that have highlighted the positive impact of information technology (Rusilowati et al., 2023), who emphasized the role of technology in enabling knowledge sharing in public organizations. However, organizational structure was also significant, with commendation hierarchies facilitating easier knowledge flow that removes obstacles to knowledge sharing in the workplace. This contradicts the studies conducted by (Abayo, 2023; Shokia, 2024) demonstrated factors that play a significant role in facilitating knowledge sharing in the public sector are leadership commitment, staff motivation, and organizational culture. Leadership support was another key factor; this showed that leadership influences the engagement of employees in both formal and informal knowledge sharing practices in public institutions by providing support, motivating, and recognizing those who engaged in knowledge sharing practices. Similarly, as observed by Sulaeman et al. (2023), transformational leadership is a determinant of effective knowledge sharing in public institutions.

Conversely, organizational culture and external influences were not statistically significant, despite some interviewees citing political or policy-related barriers. This contrasts with studies like (Abayo, 2023) which highlighted



culture as a core enabler of knowledge sharing practices. The inconsistency may stem from limited implementation of cultural initiatives or contextual constraints in the public sector. Overall, the results suggest that enhancing ICT infrastructure, leadership commitment, and organizational structure offers a practical pathway to improve knowledge sharing and, eventually, enhance effective management and conservation of natural resources among these institutions.

4.2.4 The Challenges Associated with Knowledge Sharing in Improving Service Delivery

The findings reveal significant challenges hindering knowledge-sharing practices in public institutions, particularly at TAWA and TAFORI. The regression analysis shows a moderate correlation ($R = 0.361$) between knowledge-sharing barriers and conservation efforts, suggesting that addressing these obstacles could enhance performance in management and conservation of natural resources. However, technological limitations and resistance to knowledge sharing emerged as the most statistically significant barriers ($p < 0.05$). These findings align with recent studies by Virkar et al., (2019), who found that outdated digital infrastructure remains a critical obstacle to knowledge exchange in public sector institutions across developing countries. Similarly, the negative impact of resistance comes from political influence or organizational culture, which may lead to failure in knowledge exchange among employees in the management and conservation of natural resources sectors. To reinforce these findings, the employees at TAWA and TAFORI were interviewed, where one respondent stated,

"We still rely on emails and paper-based processes, which slow down knowledge exchange. For instance, the knowledge extracted from the technical report is delayed in reaching the respective employees."

This mirrors recent evidence of existing technological limitations in public institutions. Additionally, interviewees highlighted resistance from political and individual interests. In political resistance, one notes, *"Sometimes employees have relevant knowledge but are prohibited from sharing it, when it conflicts with the political interests of leaders."* This supports recent work by Rusilowati et al. (2023), which linked power dynamics in public institutions to knowledge hoarding. In individual resistance, one notes that,

"... Employee owning specific knowledge could enjoy some benefits and unique positions, so they believe that when they share that knowledge with others would lose their unique positions in institutions..."

This suggests that public institutions must implement digital transformation to ensure they have the necessary effective technological facilities and a strategic approach that embeds knowledge sharing into institutional goals without being interfered with by political interests to enhance performance in the workplace.

However, other variables such as lack of priority in knowledge-sharing, worry about being replaced, lack of incentives, time constraints, and leadership support were not statistically significant ($p > 0.05$) at TAWA and TAFORI. This contrasts with previous studies like (TitiAmayah, 2013), who found that incentive systems supported by leadership significantly boost knowledge sharing in working environments. Therefore, inconsistency of strong challenges may stem from the unique context of public sector institutions.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

The study emphasized the importance of formal and informal knowledge-sharing channels in enhancing knowledge exchange among employees in public institutions dedicated to natural resource management and conservation. Joint project collaboration and casual conversations contribute most positive statistical significantly to access and share the knowledge related to the institution's operations, which rely on natural resources management and conservation matters. While various channels are used, many have shown a low statistical significance in access and shared related knowledge due to their less on-the-spot involvement in sharing knowledge. In parallel, key factors such as technology infrastructure, organizational structure, and leadership support are essential for fostering effective knowledge-sharing practices. However, challenges like technological limitations, resistance to sharing knowledge, and insufficient leadership support hinder performance. Addressing these challenges is crucial for understanding effective knowledge sharing in this sector.

5.2 Recommendations

The study recommends that to attain efficacy in managing and conserving natural resources through knowledge sharing, public institutions based on natural resource conservation should engage in knowledge sharing channels which have high significant in sharing knowledge related to the operations of these institutions, where it becomes easy for employees to utilize knowledge related to the organizational activities. This is possible through investment in technological infrastructures such as internet service, hardware, online collaboration tools, transformational leadership, and commendation hierarchies that will facilitate collaboration in performing organizational activities by promoting teamwork and allowing interaction that fosters casual conversations among employees in the natural resources management and conservation sectors. Moreover, a strongly implemented strategic policy for sharing knowledge will



address technological and resistance challenges that hinder the knowledge sharing process in public institutions based on the natural resources management and conservation sector which contribute to sharing valuable knowledge utilized in performing conservation functions effectively.

Declaration of conflicting interest

The author(s) declared no potential conflicts of interest concerning the research, authorship, and/or publication of this article.

REFERENCES

- Abayo, A. (2023). Assessment of staff motivation on employee performance: The case of Public Service Management and Good Governance Office in Tanzania. *International Journal for Multidisciplinary Research*, 5(6), 252–270. <https://doi.org/10.36948/ijfmr.2023.v05i06.8472>
- Aljuwaiber, A. (2016). Communities of practice as an initiative for knowledge sharing in business institutions: A literature review. *Journal of Knowledge Management*, 20(4), 731–758.
- Asami, G. M., & Wamae, P. (2022). Knowledge creation and sharing for the efficiency of service delivery in the hospitality industry within the five-star hotels in Naivasha, Nakuru County. *International Journal of Current Aspects*, 6(3), 70–90. <https://doi.org/10.35942/ijcab.v6i3.279>
- Ballesteros-Rodríguez, J. L., Díaz-Díaz, N. L., Aguiar-Díaz, I., & Saá-Pérez, P. D. (2020). The role of leadership in the management of conflict and knowledge sharing in the research groups of a Spanish public university. *Public Organization Review*, 20(2), 421–436. <https://doi.org/10.1007/s11115-019-00451-7>
- Bromiley, P., & Rau, D. (2016). Operations management and the resource-based view: Another view. *Journal of Operations Management*, 41(6), 95–106.
- Caro, T., & Davenport, T. R. B. (2016). Wildlife and wildlife management in Tanzania. *Conservation Biology*, 30(4), 716–723. <https://doi.org/10.1111/cobi.12658>
- Charles, W., & Nawe, J. (2018). Knowledge management (KM) practices in institutions of higher learning in Tanzania with reference to Mbeya University of Science and Technology. *International Journal of Research in Business and Social Science*, 12(1), 48–53.
- Fasola, O. S., & Abimbola, M. O. (2023). Collaborative technology for information sharing, knowledge creation, and management in libraries. *Gateway Information Journal*, 24(1 & 2), 33–46.
- Francis, E. (2018). What is the sure way to understand wild animals? *International Journal of Avian & Wildlife Biology*, 3(5), 355–356. <https://doi.org/10.15406/ijawb.2018.03.00120>
- Fulk, J., & Yuan, Y. C. (2013). Location, motivation, and social capitalization via enterprise social networking. *Journal of Computer-Mediated Communication*, 19(1), 20–37. <https://doi.org/10.1111/jcc4.12033>
- Gosselin, F., Cordonnier, T., Bilger, I., Jappiot, M., Chauvin, C., & Gosselin, M. (2018). Ecological research and environmental management: We need different interfaces based on different knowledge types. *Journal of Environmental Management*, 218, 388–401. <https://doi.org/10.1016/j.jenvman.2018.04.025>
- Helander, N., Paunu, A., & Hellsten, P. (2022). Knowledge management processes in practice: Empirical insights from the public sector. *Hawaii International Conference on System Sciences*. <https://doi.org/10.24251/HICSS.2022.673>
- Jobson, M., Hall, J., & Smith, A. (2019). Mentorship and knowledge transfer in healthcare: A critical review. *Journal of Health Management*, 21(1), 43–58.
- Lee, J., Jin, M. H., & Ryu, G. (2021). Motivated to share? Using the person–environment fit theory to explain the link between public service motivation and knowledge sharing. *Sustainability*, 13(11), 6286. <https://doi.org/10.3390/su13116286>
- Liu, W., & Florkowski, W. J. (2021). Online meal ordering service quality and delivery speed: Opportunities for restaurant operators? *Annals of the Polish Association of Agricultural and Agribusiness Economists*, 23(4), 108–128. <https://doi.org/10.5604/01.3001.0015.5971>
- Mahfodh, A. B. S. bin, & Obeidat, A. M. (2020). Knowledge sharing tools and their impact on enhancing organizational performance. *International Journal of Academic Research in Business and Social Sciences*, 10(9), 91–112. <https://doi.org/10.6007/ijarbss/v10-i9/7708>
- Mairiga, N., & Ibrahim, M. (2021). Assessment of indigenous knowledge in managing environmental challenges: A case study of Ringim Local Government Area of Jigawa State, Nigeria. *International Journal of Scientific Advances*, 2(4), 606–611. <https://doi.org/10.51542/ijscia.v2i4.25>
- McCombes, S. (2019). Descriptive research | Definition, types, methods & example. *Scribbr*. <https://www.scribbr.com/methodology/descriptive-research/>



- Mohd Rasdi, R., & Tangaraja, G. (2022). Knowledge-sharing behavior in public service organizations: Determinants and the roles of affective commitment and normative commitment. *European Journal of Training and Development*, 46(3/4), 337–355.
- Mtega, W. P., & Ngoepe, M. (2020). Knowledge management best practices among rice farmers in selected areas of Tanzania. *Journal of Librarianship and Information Science*, 52(2), 331–344. <https://doi.org/10.1177/0961000619856087>
- Mtega, W. P., Dulle, F., & Tarimo, B. (2013). Understanding the knowledge sharing process among rural communities in Tanzania: A review of selected studies. *Knowledge Management & E-Learning: An International Journal*, 5(2), 205–217. <https://doi.org/10.34105/j.kmel.2013.05.014>
- Mutage, M., & Dewah, P. (2022). Knowledge hoarding at a state university library in Zimbabwe. *University of Dar es Salaam Library Journal*, 16(2), 3–18. <https://doi.org/10.4314/udslj.v16i2.2>
- Mwalukasa, N. (2022). Mobile phones in enhancing education: Factors influencing the use of mobile phones in accessing academic information in Tanzania. In *Proceedings or Book Title*, 229–248.
- Navimipour, N. J., & Charband, Y. (2016). Knowledge sharing mechanisms: A systematic review of the state-of-the-art literature and future directions. *Information Systems Frontiers*, 18(6), 1131–1151.
- Ngcobo, J. B. (2020). Knowledge sharing practices in public libraries: A case study of Ethekwini Municipal Libraries (EML) (Master's thesis). University of KwaZulu-Natal, South Africa.
- Nguyen, P. V., Nguyen, N. T. T., & Nguyen, Q. T. T. (2020). Public service motivation, organizational social capital, workplace environment, and knowledge sharing behavior within the public sector. *Journal of Southwest Jiaotong University*, 55(3), 24. <https://doi.org/10.35741/issn.0258-2724.55.3.24>
- Pallant, J. (2020). *SPSS survival manual: A step-by-step guide to data analysis using IBM SPSS*. Routledge.
- Rusilowati, U., Metarini, R. A., & Sunarsi, D. (2023). Utilizing information technology in knowledge sharing to enhance the performance of public organizations. *I3(1)*, 325–332.
- Sathyanarayana, S., Mohanasundaram, T., Pushpa, B. V., & Hema, H. (2024). Selecting the right sample size: Methods and considerations for social science researchers. *I3(7)*, 52–167.
- Shao, D., Mwangakala, H., Ishengoma, F., Mongi, H., Mambile, C., & Chali, F. (2023). Sustainance of the digital transformations induced by the COVID-19 pandemic response: Lessons from Tanzanian public sector. *Global Knowledge, Memory and Communication*, 72(6/7), 700–713. <https://doi.org/10.1108/GKMC-11-2021-0186>
- Shokia, A. (2024). Strategies for employee retention in public sector organizations: A case of Tanzania Fisheries Research Institute, Dar es Salaam. *International Journal of Research Publication and Reviews*, 5(3), 4354–4362. <https://doi.org/10.55248/gengpi.5.0324.07114>
- Sulaeman, M. M., Suhartono, E., & Wibowo, S. N. (2023). Knowledge management as a strategic pillar in organizational adaptation to the dynamics of business environment change. *Journal of Contemporary Administration and Management (ADMAN)*, 1(3), 208–214. <https://doi.org/10.61100/adman.v1i3.82>
- Tanzania Forestry Research Institute. (2021). *Strategic plan 2021/22–2025/26: United Republic of Tanzania Ministry of Natural Resources and Tourism Tanzania Forestry Research Institute*.
- TitiAmayah, A. (2013). Determinants of knowledge sharing in a public sector organization. *Journal of Knowledge Management*, 17(3), 454–471.
- Upadhyay, G. (2023). Experience of knowledge sharing among teachers in higher education. *AMC Journal*, 4(1), 26–37. <https://doi.org/10.3126/amcj.v4i1.63708>
- Virkar, S., Edelmann, N., Hynek, N., Parycek, P., Steiner, G., & Zenk, L. (2019). Digital transformation in public sector organizations: The role of informal knowledge sharing networks and social media. In P. Panagiotopoulos et al. (Eds.), *Electronic participation* (pp. 60–72). Springer. https://doi.org/10.1007/978-3-030-27397-2_6
- Yami, M., & Ajmal, M. (2019). Pursuing sustainable development with knowledge management in the public sector. *Vine Journal of Information and Knowledge Management Systems*, 49(4), 568–593. <https://doi.org/10.1108/vjikms-05-2019-0068>
- Young, N., Corriveau, M., Nguyen, V., Cooke, S., & Hinch, S. (2018). Embracing disruptive new science? Biotelemetry meets co-management in Canada's Fraser River. *Fisheries*, 43(1), 51–60. <https://doi.org/10.1002/fsh.10015>
- Zoogah, D. B., Gomes, E., & Cunha, M. P. (2020). Autochthonous management knowledge/knowledge management in Africa. *Journal of Knowledge Management*, 24(6), 1493–1512. <https://doi.org/10.1108/JKM-10-2019-0554>
- Zulfadrim, Z., Toyoda, Y., & Kanegae, H. (2019). The integration of indigenous knowledge for disaster risk reduction practices through scientific knowledge: Cases from Mentawai Islands, Indonesia. *International Journal of Disaster Management*, 2(1), 1–12. <https://doi.org/10.24815/ijdm.v2i1.13503>