Issues in Information Systems
Volume 25, Issue 4, pp. 46-60, 2024

DOI: https://doi.org/10.48009/4_iis_2024_104

Examining the interrelationships between knowledge sharing, knowledge transfer, and knowledge gaps in the water sector of Caribbean small island developing states (SIDS)

Simone Lewis, *International School for Social and Business Studies, simonelewis2011@gmail.com*
Joanna Paliszkiewicz, *Warsaw University of Life Sciences, joanna_paliszkiewicz@sggw.edu.pl*
Ronald Roopnarine, *The University of the West Indies, Ronald.Roopnarine@sta.uwi.edu*

Abstract

This study explores the interrelationships between Knowledge Sharing (KS), Knowledge Transfer (KT), and Knowledge Gaps (KG) within the water sector of Caribbean Small Island Developing States (SIDS), highlighting their diverse socio-cultural, economic, and biophysical characteristics and unique vulnerabilities. The research utilises a quantitative, non-experimental survey involving 515 employees across 16 SIDS, with findings indicating a well-educated and experienced workforce, yet a notable gender disparity. Reliability analysis yielded a high Cronbach's Alpha, confirming the robustness of the KS questions. Significant positive correlations were identified between KS and KT ($r=0.741$, $p<0.001$), KS and KG ($r=0.649$, $p<0.001$), and KT and KG ($r=0.644$, $p<0.001$), emphasising the need for open communication, collaboration, and information exchange to enhance KT processes. However, increased KS may widen KG due to varying knowledge interpretations and applications, posing challenges in achieving effective understanding. The study underscores the necessity of robust governance, adaptive strategies, community participation, and capacity building to mitigate climate change effects and improve water management practices. Effective Knowledge Management (KM) is critical for organisational success, with information technologies offering solutions to enhance KS and KT, thereby contributing to sustainable development and climate resilience in Caribbean SIDS.

Keywords: knowledge sharing, knowledge transfer, knowledge gap, Caribbean small island developing states, water sector

Introduction

Small Island Developing States (SIDS) exhibit significant diversity in biophysical, sociocultural, and economic characteristics (Timilsina & Shah, 2016). Recognised as a distinct group of developing countries at the 1992 Earth Summit in Rio de Janeiro, Brazil, SIDS face unique social, economic, and environmental vulnerabilities (Coke, 2023). The 16 Caribbean SIDS are particularly noteworthy for their limited land masses, small populations, remoteness from international markets in addition to high transportation costs, and fragile land and marine ecosystems (Eudoxie & Roopnarine, 2017; Mycoo, 2018; Mycoo & Roopnarine, 2024).

The global environmental challenges facing SIDS, especially in the water sector, have been extensively documented, underscoring significant vulnerabilities (Mycoo & Roopnarine, 2024; Robinson, 2020). By 2050, it is projected that water scarcity will intensify, with approximately 52% of the world's population

living in water-stressed regions (Kölbel et al., 2018; Robinson, 2017). Due to their inherent vulnerabilities and limited freshwater resources, SIDS are particularly susceptible to trends such as climate change, water scarcity, economic vulnerability, biodiversity loss and health risks (Roberts et al., 2021). Most SIDS will experience declines in freshwater supplies due to reduced rainfall and increased demand from population growth and tourism expansion (Cashman & Yawson, 2019). Addressing these challenges necessitates robust governance and adaptive strategies for sustainable development (Robinson & Wren, 2020). Caribbean researchers emphasise the importance of improving governance, building capacity, and fostering community participation to enhance resilience against these environmental challenges (Mycoo, 2018; Scobie, 2016). Effective governance and adaptive strategies are critical in mitigating the severe impacts of climate change on SIDS (Robinson, 2017).

Governance significantly influences the impact of natural disasters on SIDS (Doorga et al., 2024). Improving governance and capacity-building in SIDS involves cooperation across different government levels, increased training and resources for the public sector, and greater community-level awareness and participation (Roopnarine et al., 2021). This holistic approach can enhance access to information on community vulnerabilities, impacts, and adaptive capacities (Miquelajauregui et al., 2021; Mycoo, 2018), improve understanding of existing program limitations (Dammert et al., 2018), and create opportunities for empowering vulnerable groups such as women and youth (Stuart et al., 2018). Community participation can also foster a social understanding of resilience, often seen only in terms of ecosystem capacity to withstand and recover from damage (Crate & Nuttall, 2016; Gheuens, Nagabhatla & Perera, 2019; Roberts, 2021), by considering communities' capabilities to absorb changes (Copeland et al., 2020).

Since 1992, the critical role of information and knowledge for SIDS' overall development has been highlighted through their inclusion in key development frameworks such as "Earth Summit: Agenda 21: United Nations Plan of Action from Rio", the "Programme for Action for the Sustainable Development of Small Island Developing States" (Lachmann et al., 2017), and the "Mauritius Strategy for the Further Implementation of the Programme of Action for Sustainable Development of Small Islands Developing States" (Hassall, 2023). Effective implementation of these frameworks requires the creation, transfer, and application of knowledge (Scobie, 2016). Caribbean authors have significantly contributed to understanding these dynamics, emphasising the importance of local knowledge and regional cooperation (Robinson & Wren, 2020).

Strengthening the knowledge-sharing capacity of developing countries is crucial for achieving the Sustainable Development Goals (SDGs) (Bengtsson et al., 2018; Cummings et al., 2018; Janus & Karp, 2019). Enhanced knowledge management can facilitate the growth and development of SIDS, making them more resilient and better equipped to adapt to their challenges. Knowledge management is increasingly recognized as a critical component in the 2030 Agenda for Sustainable Development and the SDGs (Briceño & Santos, 2019; Liebowitz, 2021).

Given these complexities, this study aimed to examine the interrelationships between knowledge sharing, knowledge transfer, and knowledge gaps in the water sector of sixteen (16) Caribbean SIDS. Understanding these interconnections is crucial for developing effective strategies to enhance water resource management, resilience, and sustainable development in the Caribbean region.

Literature Review

Knowledge Management (KM) has a long historical trajectory, with Western and Eastern philosophers documenting knowledge and the reasons for knowing over millennia (Tran, 2014). Historically, these

efforts were directed towards obtaining theoretical and abstract understandings of knowledge, emphasising its importance in both spiritual and secular life.

Definitions of Knowledge Management

The definitions of KM are diverse and multifaceted. Argote (2012) describes KM as an organisation's ability to capture, create, deliver, and use knowledge to achieve organisational learning. Dalkir (2017) defines KM as the combination of tools, techniques, and strategies to retain, organise, analyse, and share business expertise. Rowley (1999) emphasises that KM involves processes related to identifying, sharing, and creating knowledge. Bolisani et al. (2018) state that KM integrates people, resources, processes, and information to achieve strategic objectives, including knowledge translation and innovation brokering. Effective knowledge production requires collaboration between users and producers of knowledge, ensuring that the knowledge meets user needs and is comprehensible and applicable (Hegger et al., 2012).

Importance of Knowledge Management

Knowledge has become a crucial resource for organisations, enabling the development of expertise, problem-solving, organisational learning, and innovation (Cai & Etzkowitz, 2020). The accelerated pace and dynamic nature of the new economy, coupled with significant technological advances, have driven organisations to leverage their knowledge to generate sustained value (Kant & Kanda, 2019). Effective utilization of intangible assets can create a competitive advantage in the market (Robinson & Wren, 2020). KM promotes an integrated approach to identifying, capturing, evaluating, retrieving, and sharing an enterprise's information assets, including databases, documents, and procedures (Henao-Calad et al., 2017). The rapid evolution of KM systems, such as communities of practice, highlights its integral role in business functions (Scobie, 2016).

Practical and Theoretical Integration of Knowledge

The need for practical knowledge, particularly for expertise and operational understanding, has been critical since early human survival. Managing practical knowledge was initially implicit and unsystematic, a trend that often continues (Briner & Walshe, 2014). The systematic and pragmatic KM considerations in the 13th-century craft guilds and apprentice-journeyman-master systems exemplify early structured KM practices. However, practical concerns for knowledge have historically remained separate from theoretical and abstract epistemological and religious perspectives (Code, 2020). Modern KM emphasises commercial effectiveness but also recognises the necessity of considering the whole person to achieve competitive excellence. This includes integrating cognition, motivation, personal satisfaction, security, and other factors.

Organisational Knowledge-Based Theory

Organisational knowledge-based theory involves capturing employees' cumulative knowledge, integrating it with existing knowledge, and developing strategies to use this knowledge for increased efficiency (Mohajan, 2017). Organisations must foster an environment where employees' knowledge can be converted into organisational knowledge, aiding decision-makers in making informed decisions. Various factors within an organisation contribute to processes through knowledge flows (Zhuge, 2006). Developing a system to harness organisational knowledge requires identifying knowledge sources and understanding its flow from source to destination.

Challenges in Knowledge Management and Sharing in Caribbean SIDS

The fragmented approach to water resources management in the Caribbean, coupled with limited financial and human resources, underscores the need for partnership arrangements to address information and knowledge concerns (Mycoo & Roopnarine, 2024). Data gathering and availability are critical issues for assessing the region's water resources (Chadeee et al., 2024). Although systems are being implemented to improve data management, planning is often ad hoc.

The Interrelationship Between Knowledge Sharing, Knowledge Transfer, and Knowledge Gaps

In the water sector, the interplay between KS, KT and KG is crucial for enhancing resilience and sustainability in Caribbean SIDS. Effective KS practices disseminate valuable information and expertise among stakeholders, fostering innovation and informed decision-making (Robinson & Wren, 2020). KT processes ensure that shared knowledge is practically applied, leading to improved water management practices (Cummings et al., 2018). However, KG, which represents the gaps between available and required knowledge, can hinder these processes (Gheuens, Nagabhatla & Perera, 2019). Addressing KG is essential to ensure stakeholders have the necessary information for informed decisions and actions (Bengtsson et al., 2018). Robust governance, community participation, and capacity building are critical in bridging these gaps and enhancing KS and KT effectiveness (Mycoo, 2018; Scobie, 2016). Understanding and addressing the dynamic interplay between KS, KT, and KG can lead to more resilient and sustainable water management practices, contributing to sustainable development and climate resilience in Caribbean SIDS (Liebowitz, 2021).

This paper examines the water sector of Caribbean SIDS, focusing on the relationships between KS, KT and KG and their impact on resilience and sustainability. It explores the mechanisms of KS and KT, identifying barriers and facilitators, and underscores the importance of robust governance, adaptive strategies, community participation, and capacity building in mitigating climate change effects. The study highlights the role of regional cooperation and comprehensive frameworks in enhancing water resource management. It provides actionable insights for policymakers and stakeholders to improve KS and KT practices, address KG, and enhance the resilience and sustainability of the water sector, contributing to broader sustainable development and climate resilience goals.

Methodology

The survey developed targeted 16 Caribbean SIDS and it was designed to collect KM data in the water sector of Caribbean SIDS. The survey instrument, developed using the 1KA (ONE CLICK SURVEY) online survey tool, aimed to assess the status of KM in the water sector of Caribbean SIDS. The survey comprised 25 questions divided into six sections, preceded by a brief introduction to KM.

The survey consisted of six sections. Section 1 covered demographics with seven closed-ended questions about age, gender, education, position, service length, country, and organisation budget, allowing one response per question. Section 2 focused on KM with a multiple-choice Likert scale question to gauge agreement with nine statements. Section 3 had three questions on practices, barriers, and improvements for KS, allowing multiple selections. Section 4 included two questions on barriers to and methods for improving KT, permitting multiple responses. Section 5 assessed the KG with four questions on KG aspects, strategies, and thematic areas needing KS and capacity building, allowing multiple selections. Section 6 addressed the Knowledge Management Framework (KMF) with eight questions on the necessity of a Regional Framework for KS and KT, existing and needed tools, barriers, cultural impacts, and

improvement areas, with multiple responses permitted. Choices for closed-ended and predefined-option questions were based on existing literature.

Feedback from five individuals knowledgeable about the water sector in Caribbean SIDS was incorporated into the final questionnaire, which was distributed to 515 professionals. The survey, estimated to take 10 minutes to complete, targeted individuals in the water sector across 16 Caribbean SIDS and encouraged snowball sampling to boost response rates. It remained active for one month. Responses to closed-ended and predefined-option questions were coded for quantitative analysis, with numerical values assigned to quantify the data. Open-ended responses were not coded due to their diversity. Numerical values between 1 and 10 were assigned to demographic questions, and values between 1 and 5 were used for sections on KM, KS, KT, KG and KMF, based on perceived importance. Codes were multiplied by response counts, with unanswered responses assigned a value of zero to maintain data integrity and accuracy in analysis.

The data analysis was conducted using SPSS software version 26, with all interpretations performed at a 95% confidence level. Bar charts were employed to visualise the demographics and backgrounds of the participants, using categorical variables such as Age, Gender, Highest Level of Education, Current Position, Experience in the Water Sector and Current Country of Residence. Frequencies under each category were used to develop the graphs, which were described using the percentage of respondents in each subcategory.

Descriptive statistics were used to summarise the numerical variables. To evaluate the overall consistency of responses to questions measured on a weighted scale, reliability analysis was conducted using Cronbach's Alpha. This analysis tested the internal consistency of the responses for the constructs related to KS, KT and KG.

Bivariate correlation analysis, utilizing Pearson’s correlation coefficient, was employed to assess the relationships between two variables. This method measured the strength and direction of these relationships. The sum of the scores was calculated for all questions under each construct related to KS, KT, and KG. Additionally, this analysis was used to explore other potential relationships among continuous variables.

Results

The survey data indicated that 303 out of 515 valid email addresses accessed the survey, yielding a 58.8% access rate. Of these, 97 respondents either fully or partially completed the survey, resulting in a 32% response rate, with 19.8% fully completing the questionnaire. This percentage of 19.8 was acceptable as it was reflective of a range of organisations and levels in Caribbean SIDS that responded to the survey. Results of the socio-demographic profile of the respondents and the inter-relationship between KS, KT and KG are presented below

The personal characteristics of the respondents were identified by Age, Gender, Highest level of education, Current position, Experience in the water sector and Current country of residence.

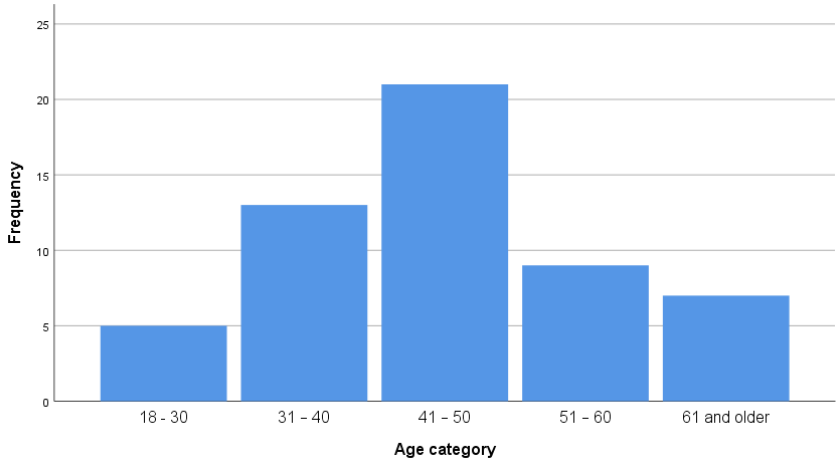

Figure 1: Age of the respondents

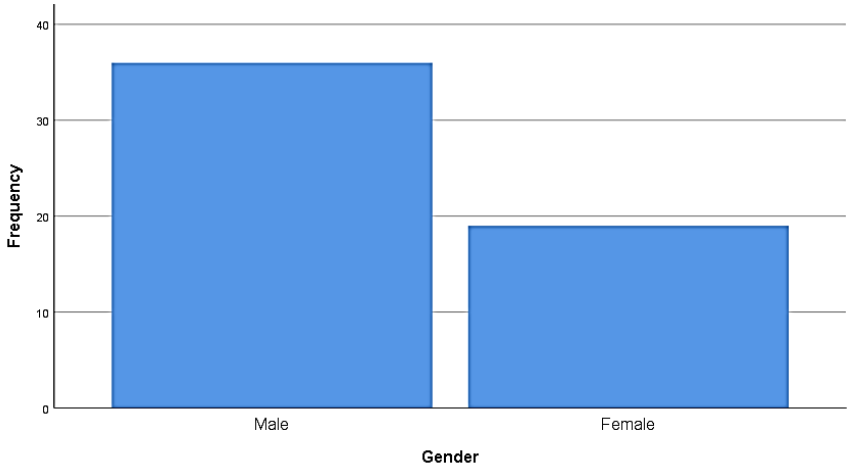

Figure 2: Gender of the respondents

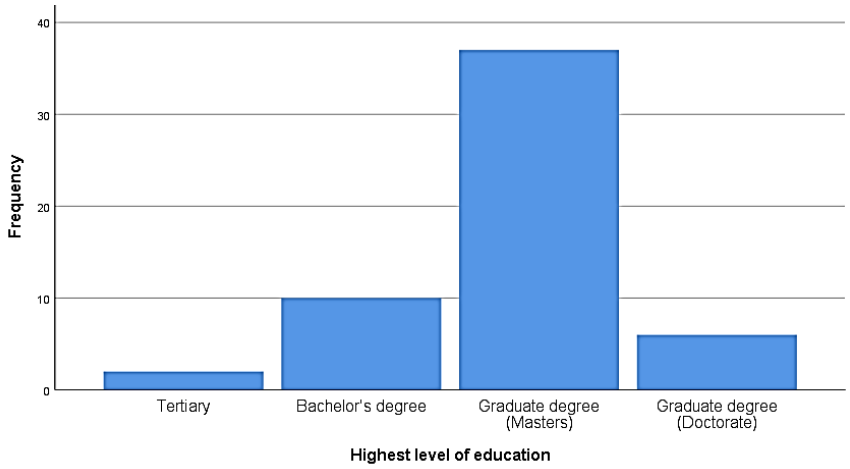

Figure 3: The highest level of education achieved by the respondents

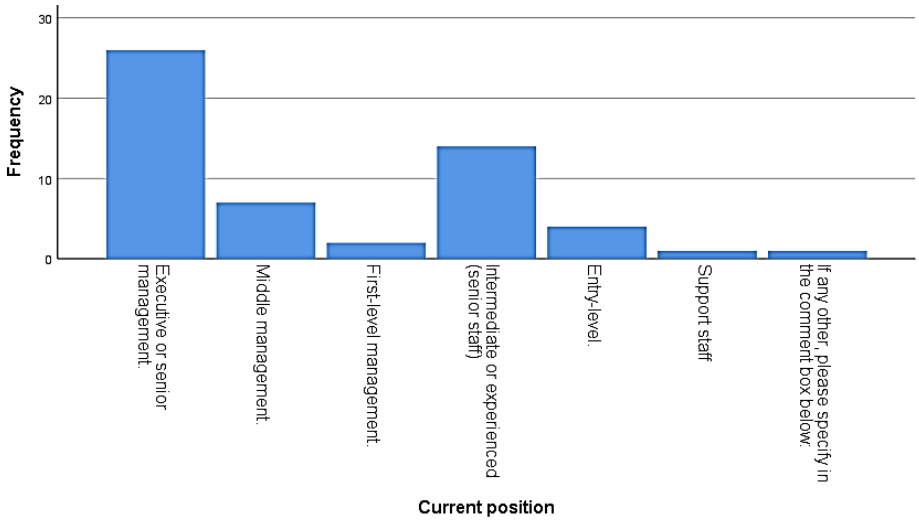

Figure 4: Current position of the respondents in their organisations

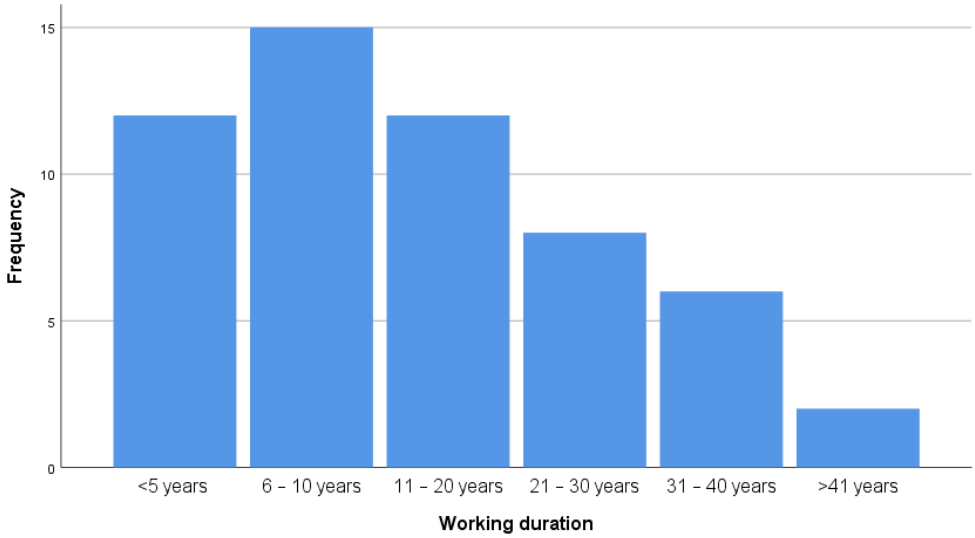

Figure 5: Working experience of the respondents in the water sector.

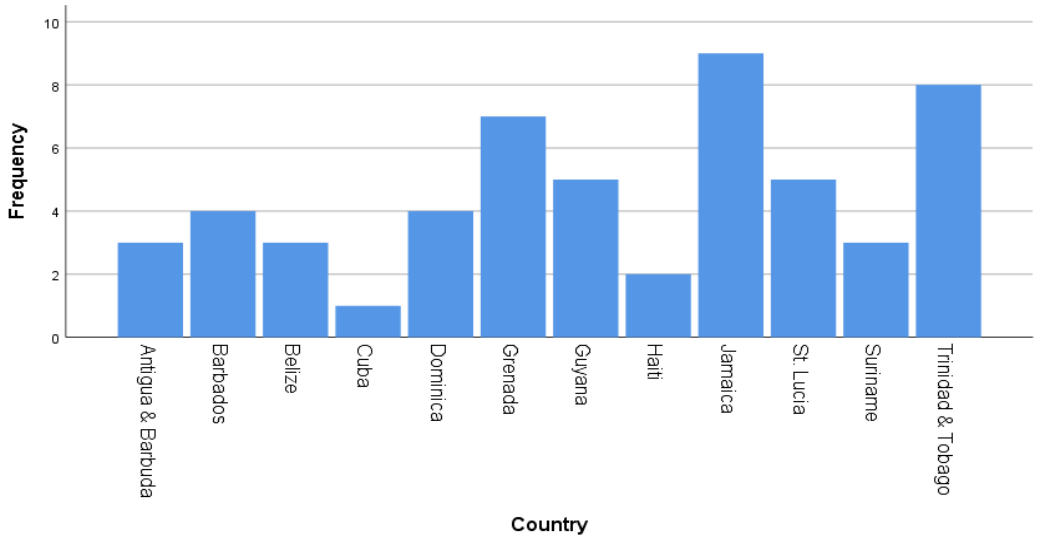

Figure 6: Country in which the respondents reside at present

The reliability of the constructed questions for KS, KT and KG was assessed using reliability analysis. The results are presented in Table 1. The Cronbach's Alpha for the KS questions was 0.811, indicating a high level of internal consistency. For the KT and KG constructs, the alpha values were approximately 0.7, suggesting acceptable reliability of the responses.

Table 1: Results of the reliability analysis performed for factors considered under KS, KT and KG

Construct	Cronbach's Alpha	N of Items
KS	0.811	27
KT	0.671	21
KG	0.657	28

Bivariate correlation analysis was performed using Pearson's correlation method to evaluate the relationship among the sum of the scores under each KT, KS and KG. Table 2 below shows the results.

Table 2: Results of the bivariate correlation analysis

		Knowledge Sharing	Knowledge Transfer	Knowledge Gap
Knowledge Sharing	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	55		
Knowledge Transfer	Pearson Correlation	.741**	1	
	Sig. (2-tailed)	0.000		
	N	55	55	

		Knowledge Sharing	Knowledge Transfer	Knowledge Gap
Knowledge gap	Pearson Correlation	.649**	.644**	1
	Sig. (2-tailed)	0.000	0.000	
	N	55	55	55

The second analysis focused on the KG and the KM framework. A bivariate correlation analysis was conducted using Pearson's correlation method to evaluate the relationships among the summed scores for KS, KT and KG. The results are presented in Table 3.

Table 3: Results of the correlation analysis of the KG and KM Framework

		Knowledge Sharing	Knowledge Transfer
Knowledge Gap	Pearson Correlation	.649**	.644**
	Sig. (2-tailed)	0.000	0.000
	N	55	55

Discussion

The demographic analysis in Figure 1 revealed that 38.2% of respondents were in the 41-50 age group, 23.6% were in the 31-40 age group, 9.1% were in the 18-30 age group, and 12.7% were 61 years or older, with 70.9% of respondents under 50 years old. This indicates a relatively younger population, many in mid-career to early seniority stages. Younger professionals are more likely to participate in surveys due to higher engagement with research and technology and easier accessibility via digital platforms. The water sector in Caribbean SIDS attracts younger individuals due to emerging opportunities and the demand for current skills (Simmons, 2021). Additionally, workforce demographics show more younger professionals due to industry growth and recent hiring trends (Hertel & Zacher, 2018).

The results in Figure 2 revealed a gender disparity among respondents, with 65.5% being male and 34.5% female. This significant imbalance indicates a gender gap in participation and engagement within the water sector in Caribbean SIDS. The overrepresentation of males suggests that various socio-cultural, institutional, and systemic factors may contribute to this disparity. This trend aligns with broader patterns observed in STEM fields and other male-dominated sectors, where women are often underrepresented. Understanding this imbalance is crucial for addressing gender representation and perspectives in the study (Aquino et al., 2023).

The educational attainment of respondents, as shown in Figure 3, reveals that 67.3% held master's degrees, indicating a high level of advanced education. Additionally, 18.2% had bachelor's degrees, 10.9% had graduate degrees, and 3.6% had tertiary-level education, reflecting diverse educational backgrounds. This distribution suggests many respondents possess specialised skills and expertise relevant to the study on building resilience in the water sector in Caribbean SIDS (Lewis, 2021). A high proportion of respondents with advanced degrees provides valuable context for understanding their knowledge base and professional background.

Figure 4 illustrates the occupational roles and hierarchical positions of respondents, with 47.3% in executive or senior managerial roles indicating strong decision-making authority. Additionally, 25.5% were senior staff members, highlighting experienced professionals, and 12.7% were in middle management, representing supervisory positions. This distribution demonstrates a diversity of perspectives, expertise, and decision-making authority, significantly influencing organisational policies on resilience-building in the water sector.

Figure 5 provides insights into the professional experience of respondents in the water sector, showing a diverse range of experience levels. Notably, 27.3% of respondents had 6-10 years of experience, indicating a substantial group with moderate experience. Additionally, 21.8% had 11-20 years of experience, representing a significant cohort with extensive knowledge. Another 21.8% had 5 years or less experience, highlighting the inclusion of newer individuals who may bring fresh perspectives. Overall, 50.9% of respondents had more than 10 years of experience, underscoring a substantial portion with deep expertise in the water sector, crucial for resilience-building initiatives.

Figure 6 highlights the geographic diversity of respondents in the study, covering 12 out of 16 Caribbean SIDS. Notably, 16.4% of participants were from Jamaica and 14.5% from Trinidad & Tobago. This distribution underscores the regional reach and inclusivity of the study, capturing a wide range of perspectives and experiences relevant to resilience-building in the water sector. The diverse representation from multiple Caribbean countries indicates a broad engagement and interest in the study's focus. The specific country-level data also reflect varying levels of participation and capacity in resilience efforts within the water sector across the region.

The statistical technique used to evaluate the reliability of these theoretical constructs for KS, KT and KG, confirmed that the survey questions designed to measure knowledge sharing, knowledge transfer, and knowledge generation were consistent and stable in their assessment. It also indicated the extent to which these questions and the applied scale measured the same underlying construct. The Cronbach's Alpha as shown in Table 1 for the KS questions was 0.811, indicating a high level of internal consistency. For KT and KG, the alpha values were approximately 0.7, suggesting acceptable reliability. This implied that the respondents' answers to these questions were correlated, effectively capturing the same underlying concept, thus confirming the reliability of the responses.

The relationship between KS and KT was examined using Pearson’s correlation coefficient as shown in Table 2. The analysis revealed a strong positive relationship ($r=0.741$, $p<0.001$), indicating that as KS increased, KT also increased. The positive direction of the correlation suggested that higher levels of KS were associated with higher levels of KT, implying effective dissemination of knowledge within organisations or among individuals (Obeso et al., 2020). The p-value of less than 0.001 indicated that the relationship was statistically significant and not likely due to random chance.

Furthermore, the strong positive relationship between KS and KT underscores the significance of fostering a culture of Knowledge Sharing to enhance KT (Mubarak, 2021). The statistical significance reinforced the confidence that this relationship was not due to random variation, suggesting that active KS facilitated effective KT. This principle is crucial in educational, training, and collaborative work environments.

The analysis revealed a strong positive relationship between KS and KG ($r=0.649$, $p<0.001$), indicating a statistically significant correlation. As KS increased, KG also tended to increase, promoting the dissemination and exchange of information, ideas, and best practices, fostering learning and innovation (Ahmad & Karim, 2019). The significant p-value (<0.001) confirmed that this relationship was unlikely due to chance. However, it also implied that while KS activities increased, challenges in understanding or

applying shared knowledge may have contributed to the widening of the KG, affecting knowledge dissemination and utilisation.

Similarly, the correlation coefficient of 0.644 indicated a strong positive relationship between KT and KG such as projects and deployment being subject to delays, employees refusing to part ways with an outdated system, management being frustrated about the lack of skills their employees possess, unnecessary mistakes being made by employees, dissatisfied employees and employees are replaced at a fast rate. This suggested that effective KT is associated with an increase in the KG. A p-value of less than 0.001 further confirmed the statistical significance of this relationship, indicating a low probability of obtaining such a correlation by chance. This suggested that despite efforts to transfer knowledge, there may be challenges in ensuring its effective understanding or application, contributing to a widening of the KG.

The analysis indicated that a larger KG suggests a weak KMF. Strong, positive, and significant relationships were found between knowledge sharing (KS) and KG ($r=0.649$, $p<0.001$) and between knowledge transfer (KT) and KG ($r=0.644$, $p<0.001$), implying that as KS and KT activities increase, KG also increases. These statistically significant correlations (Nguyen et al., 2019) indicate that higher levels of KS and KT are associated with higher levels of KG. The p-values (<0.001) confirm the significance of these relationships, suggesting that frequent knowledge sharing and transferring contribute to the generation of new knowledge (Ode & Ayavoo, 2020). This explains the increase in KG, as active knowledge exchange fosters an environment conducive to new ideas and innovations.

Implications for Research

Further investigation is required to elucidate the underlying factors influencing the relationships among KS, KT and KG, such as communication barriers, diverse interpretations of shared knowledge, and practical application challenges. Additional research should focus on optimising KS to minimise the widening of the KG, exploring strategies to enhance the effectiveness of KS initiatives and mitigating potential negative consequences. The research underscores a significant positive relationship between KS and KG, highlighting the need to understand the dynamics between these factors. Developing strategies that optimise KS and address challenges in narrowing the KG within organisations or communities is crucial. Further research should delve into the underlying reasons for this relationship and its implications for KM strategies.

Limitations

This study has several limitations. Firstly, the survey relied on self-reported data, which may introduce biases such as social desirability or inaccurate recollections. Secondly, the study's cross-sectional design provided a snapshot in time but does not capture the dynamic and evolving nature of KM practices. Longitudinal studies would be beneficial for understanding how KM processes and their impacts develop over time. Additionally, while the high Cronbach's Alpha values suggest reliability, they do not fully eliminate the potential for measurement errors or the influence of unmeasured variables. Finally, the study primarily focused on quantitative data, potentially overlooking nuanced insights that qualitative approaches could provide. Future research could address these limitations by incorporating mixed-methods approaches, expanding the sample size, and conducting longitudinal analyses to better capture the complexities of KM in Caribbean SIDS.

Conclusions

The demographic analysis of respondents in this study highlights a well-educated and experienced workforce within the water sector in Caribbean SIDS, with the majority being younger professionals in mid-career to early seniority stages, poised to influence resilience-building initiatives. However, a notable gender disparity exists, emphasising the need for greater inclusivity. The high educational attainment, particularly the prevalence of master's degree holders, underscores the advanced expertise of the respondents. The varied occupational roles and hierarchical positions, with significant representation of senior managers and executives, illustrate diverse perspectives and strong decision-making authority. With over half of the respondents having more than ten years of experience, there is a deep reservoir of knowledge crucial for effective water management. The geographic diversity, covering 12 out of 16 Caribbean SIDS, ensures a comprehensive understanding of regional challenges and opportunities. In summary, this diverse and knowledgeable cohort is well-equipped to address the interrelationships between KS, KT and KG. The insights gained provide a robust foundation for enhancing KS and KT practices, addressing KG, and strengthening resilience-building efforts in the water sector, contributing to broader sustainable development and climate resilience goals.

The high Cronbach's Alpha value from the reliability test confirms the robustness of the KS questions, validating their use in this study. The strong positive relationship between KS and KT underscores the critical need for fostering a culture of open communication, collaboration, and information exchange within organisations and communities, as promoting these practices significantly enhances the effectiveness of KT processes, leading to more successful and efficient outcomes. While organisations and communities should prioritize and facilitate KS activities to positively influence KT, it is essential to consider the specific context and limitations of statistical inference when applying these conclusions to real-world situations. The strong positive correlation between KS and KG suggests that increased KS may lead to varying interpretations or applications of knowledge, potentially widening the KG, and highlighting challenges in KS mechanisms such as communication barriers or differing levels of understanding among participants. Similarly, the positive relationship between KT and KG indicates a need for deeper investigation into the specific dynamics, including the context and nature of the transferred knowledge. In summary, addressing the interrelationships between KS, KT, and KG is crucial for developing resilient and sustainable water management practices in Caribbean SIDS; by enhancing KS and KT practices and understanding their impact on KG, stakeholders can better mitigate the challenges faced in the water sector, ultimately contributing to broader sustainable development and climate resilience goals in the region.

References

Ahmad, F., & Karim, M. (2019). Impacts of knowledge sharing: a review and directions for future research. *Journal of workplace learning*, *31*(3), 207-230.

Aquino, B. M. A., Balocating, L. S. C., Candor, K. J. R., Daniel, F. C., & Dionglay, M. J. H. (2023). Exploring the opportunities, challenges, and ways forward of women in STEM fields: a case study. *Cognizance Journal of Multidisciplinary Studies*, *3*(6), 341-359.

Argote, L. (2012). *Organisational learning: Creating, retaining, and transferring knowledge*. Springer Science & Business Media.

Bengtsson, M., Alfredsson, E., Cohen, M., Lorek, S., & Schroeder, P. (2018). Transforming systems of consumption and production for achieving the sustainable development goals: Moving beyond efficiency. *Current Opinion in Environmental Sustainability, 32*, 54-60.

Bolisani, E., Bratianu, C., Bolisani, E., & Bratianu, C. (2018). *The emergence of knowledge management* (pp. 23-47). Springer International Publishing.

Briceño, S., & Santos, L. (2019). Knowledge management for sustainable development. In P. B. Smith & K. S. Naumann (Eds.), *Knowledge Management for Sustainable Development: Strategies and Models* (pp. 101-118). Routledge.

Briner, R. B., & Walshe, N. D. (2014). From passively received wisdom to actively constructed knowledge: Teaching systematic review skills as a foundation of evidence-based management. *Academy of Management Learning & Education, 13*(3), 415-432.

Cai, Y., & Etzkowitz, H. (2020). Theorizing the Triple Helix model: Past, present, and future. *Triple Helix, 7*(2-3), 189-226.

Cashman, A., & Yawson, D. (2019). Water, Livelihoods, and Migration in SIDS: Climate Change and Future Prospects for Carriacou, West Indies. *Resources*, *8*(4), 174.

Chadee, A. A., Ali, B., Mallikarjuna, V., Jameel, M., & Azamathulla, H. M. (2024). Application of the analytic hierarchy process for the selection of recycling rainwater/household grey water to improve SIDS sustainability targets. *Modeling Earth Systems and Environment*, *10*(2), 1883-1895.

Code, L. (2020). *Epistemic responsibility*. State University of New York Press.

Coke, K. (2023). *Comparative Analysis of Sustainable Development in Highly Populated Small Island Developing States (SIDS) in Latin America and the Caribbean (LAC)*. Hofstra University.

Copeland, H. E., Tessman, S. A., Girvetz, E. H., Roberts, L., Enquist, C., Orabona, A., ... & Pocewicz, A. (2020). Resilience in an altered state: An assessment of climate change impacts and wildlife conservation responses in the North-central United States. *Climate Change Responses, 7*, 1-23.

Crate, S., & Nuttall, M. (2016). *Anthropology and Climate Change: From Actions to Transformations*. Routledge.

Cummings, S., Regeer, B. J., De Haan, L., Zweekhorst, M. B. M., & Bunders, J. F. G. (2018). Critical discourse analysis of perspectives on knowledge and the knowledge society within the sustainable development goals. *Development Policy Review, 36*(6), 727-742.

Dalkir, K. (2013). Knowledge Management in Theory and Practice. In *Routledge eBooks*. https://doi.org/10.4324/9780080547367

Dammert, A. C., De Hoop, J., Mvukiyehe, E., & Rosati, F. C. (2018). Effects of public policy on child labor: Current knowledge, gaps, and implications for program design. *World Development, 110*, 104–123. https://doi.org/10.1016/j.worlddev.2018.05.001

Doorga, J. R. S., Bernardie-Tahir, N., Deenapanray, P. N., Dindoyal, Y., Mycoo, M., & Moncada, S. (2024). Surging seas, rising sea levels, and sinking communities: The urgent need for climate adaptation in small island states. *Environmental Science & Policy*, *157*, 103788.

Eudoxie, G., & Roopnarine, R. (2017). Land degradation in small island developing states (SIDS): Insights from the Caribbean. *Soil Use and Management, 33*(2), 256-268.

Gheuens, J., Nagabhatla, N., & Perera, E. D. P. (2019). Environmental governance and disaster resilience: Contributions of community-based initiatives in the Caribbean region. *Environmental Development, 32*, 100469.

Hassall, G. (2023). The Emergence of Small Island Developing States (SIDS) Development Discourse. In *The United Nations and the Pacific Islands* (pp. 267-274). Cham: Springer International Publishing.

Hegger, D., Lamers, M., Van Zeijl-Rozema, A., & Dieperink, C. (2012). Conceptualising joint knowledge production in regional climate change adaptation projects: success conditions and levers for action. *Environmental Science & Policy*, *18*, 52–65. https://doi.org/10.1016/j.envsci.2012.01.002

Henao-Calad, M., RIVERA-MONTOYA, P. A. U. L. A., & URIBE-OCHOA, B. E. A. T. R. I. Z. (2017). Knowledge management processes and intellectual property management processes: an integrated conceptual framework. *AD-minister*, (31), 137-160.

Hertel, G., & Zacher, H. (2018). Managing the aging workforce. *The SAGE handbook of industrial, work, & organisational psychology*, *3*, 396-428.

Janus, S. S., & Karp, T. (2019). Knowledge sharing across borders: A conceptual framework for the role of knowledge intermediaries. *Knowledge Management Research & Practice, 17*(4), 380-391.

Kant, M., & Kanda, W. (2019). Innovation intermediaries: What does it take to survive over time?. *Journal of Cleaner Production, 229*, 911-930.

Kölbel, R., Busch, J., & Egle, K. (2018). Impact of climate change on water availability and water quality. *Environmental Earth Sciences, 77*(8), 320.

Lachmann, R., Andersen, M. S., & Bruke, E. A. (2017). *Programme for Action for the Sustainable Development of Small Island Developing States*. Commonwealth Secretariat.

Lewis, S. (2021). Stakeholder Consultation to Facilitate Knowledge Sharing: A Case Study in Water Risk Management in the Caribbean. *Management*, *20*, 21.

Liebowitz, J. (2021). *Knowledge Management in Theory and Practice*. MIT Press.

McNaughton, M. L., McLeod, M. T., McNaughton, M., & Walcott, J. (2016, October). Open data as a catalyst for problem solving: empirical evidence from a small island developing states (SIDS) context. In *2016 Open Data Research Symposium*.

Miquelajauregui, Y., Bojórquez-Tapia, L. A., Eakin, H., Gómez-Priego, P., & Pedroza-Páez, D. (2021). Challenges and opportunities for universities in building adaptive capacities for sustainability: Lessons from Mexico, Central America, and the Caribbean. *Climate Policy*, 1-15.

Mohajan, H. (2017). The roles of knowledge management for the development of organisations.

Mubarak, A. M. (2021). *The Influence Of Organisational Culture On Knowledge Transfer In The Energy Sector In Kenya* (Doctoral dissertation, KCA University).

Mycoo, M. (2018). Beyond 1.5°C: Vulnerabilities and adaptation strategies for Caribbean small island developing states. *Regional Environmental Change, 18*(8), 2341-2353.

Mycoo, M. A., & Roopnarine, R. R. (2024). Water resource sustainability: Challenges, opportunities and research gaps in the English-speaking Caribbean Small Island Developing States. *PLOS Water*, *3*(1), e0000222.

Nguyen, T. M., Nham, T. P., Froese, F. J., & Malik, A. (2019). Motivation and knowledge sharing: a meta-analysis of main and moderating effects. *Journal of Knowledge Management*, *23*(5), 998-1016.

Obeso, M., Hernández-Linares, R., López-Fernández, M. C., & Serrano-Bedia, A. M. (2020). Knowledge management processes and organisational performance: the mediating role of organisational learning. *Journal of Knowledge Management*, *24*(8), 1859-1880.

Ode, E., & Ayavoo, R. (2020). The mediating role of knowledge application in the relationship between knowledge management practices and firm innovation. *Journal of Innovation & Knowledge*, *5*(3), 210-218.

Roberts, J. L., Nath, S., Paul, S., & Madhoo, Y. N. (2021). Overview, emerging issues and a roadmap for SIDs. *Shaping the future of small islands: Roadmap for sustainable development*, 405-416.

Roberts, S. (2021). Conceptualizing Resilience in Small Island States. In *Springer eBooks* (pp. 33–64). https://doi.org/10.1007/978-3-030-80238-7_3

Robinson, S. A. (2017). Climate change adaptation trends in small island developing states. *Mitigation and Adaptation Strategies for Global Change*, *22*, 669-691.

Robinson, S. A. (2020). Climate change adaptation in SIDS: A systematic review of the literature pre and post the IPCC Fifth Assessment Report. *Wiley Interdisciplinary Reviews: Climate Change*, *11*(4), e653.

Robinson, S. A., & Wren, C. (2020). Geographies of vulnerability: A research note on human system adaptations to climate change in the Caribbean. *Geografisk Tidsskrift-Danish Journal of Geography*, *120*(1), 79-86.

Roopnarine, R., Eudoxie, G., Wuddivira, M. N., Saunders, S., Lewis, S., Spencer, R., ... & Roberts, C. (2021). Capacity building in participatory approaches for hydro-climatic Disaster Risk Management in the Caribbean. *International Journal of Disaster Risk Reduction*, *66*, 102592.

Rowley, J. (1999). What is knowledge management? *Library Management*, *20*(8), 416–420. https://doi.org/10.1108/01435129910291175

Scobie, M. (2016b). Policy coherence in climate governance in Caribbean Small Island Developing States. *Environmental Science & Policy*, *58*, 16–28. https://doi.org/10.1016/j.envsci.2015.12.008

Simmons, A. (2021). *Impacts of climate change on young people in small island communities*. Cham, Switzerland: Springer International Publishing.

Stuart, S., Gény, L. R., & Abdulkadri, A. (2018). Advancing the economic empowerment and autonomy of women in the Caribbean through the 2030 Agenda for Sustainable Development.

Timilsina, G. R., & Shah, K. U. (2016). Filling the gaps: Policy supports and interventions for scaling up renewable energy development in Small Island Developing States. *Energy Policy*, *98*, 653-662.

Tran, B. (2014). The Human Element of the Knowledge Worker. In *Advances in knowledge acquisition, transfer, and management book series/Advances in knowledge acquisition, transfer and management book series* (pp. 281–303). https://doi.org/10.4018/978-1-4666-4679-7.ch017

Zhuge, H. (2006). Discovery of knowledge flow in science. *Communications of the ACM*, *49*(5), 101–107. https://doi.org/10.1145/1125944.1125948