Implication of Legal and Institutional Arrangement for Disaster Management and Emergency Response in Tanzania

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This study supports recent government reforms in disaster management and emergency response by aiming to clarify institutional roles across public and private sectors. Using institutional, complexity, and network theories, it explores how institutional arrangements and interactions can enhance emergency response effectiveness. Employing an in-depth research design, the study integrates qualitative and quantitative methods, with data collected through questionnaires, focus groups, interviews, document analysis, and expert consultations. Findings reveal that while institutional frameworks are acknowledged as influential, their impact is often perceived as limited due to weak implementation, fragmented structures, and a lack of support for collaboration. Addressing these issues could strengthen their role in fostering coordinated disaster management strategies. The study recommends reinforcing institutional frameworks through improved coordination, policy role clarification, and support for collaborative efforts. Moreover, Information and Communication Technology (ICT) plays a crucial role in integrating strategies and enabling timely responses. Finally, integrated disaster risk management is highlighted as a key driver for enhancing emergency operations and strengthening collaboration among institutions responsible for disaster response.

Keywords: disaster management, emergency response, institutional arrangement

INTRODUCTION

Background

Tanzania is prone to different nature of disasters and incidents that are natural and human made. The most common disasters that are increasingly faced in recent years are drought, floods, epidemics, desertification, bushfires, soil pollution, earthquakes, industrial fires and chemical hazards all of which have the probability of causing social, economic, ecological, environmental and health impacts. The vulnerability to natural hazards is combined with the consequences of Covid 19 pandemic outbreak and prolonged

drought that has exposed Tanzanians to numerous human-induced disasters. These include domestic fires, domestic violence, traffic accidents, industrial accidents including fires, hazardous chemical release and hazardous waste, land contamination and surface water contamination by chemical and oil spills improper waste management around major and minor mining areas and industrial areas in urban localities. Prolonged drought and the post-COVID-19 era have left essential services more expensive for normal citizens to afford, thus making people vulnerable to manageable incidents and disasters in Tanzania.

In this case, trivial policies and institutional capabilities regarding disaster risk reduction make communities and people more prone to the effects of natural and man-made calamities. Through established disaster response institutions, the government of Tanzania has been reactive rather than proactive over time in responding to various disasters and emergencies such as fires, floods, earthquake, drought, traffic accidents and, or industrial accidents.

Over the past two decades, Tanzania has developed various policies and institutional frameworks for management of various disasters. Policies include Disaster Management Policy of 2004; Environmental Management Act of 2004; National Operational Guidelines for Disaster Management; Disaster Management Act of 2003 for Zanzibar; Zanzibar Disaster Management Policy; Second National Strategy for Growth and Reduction of Poverty (NSGRP II); National Adaptation Programme of Action (NAPA, 2010); National Climate Change Strategy (2012); Guidelines for Integrating Climate Change Adaptation into National Sectoral Policies and the Disaster Management Act, 2015.

The Disaster Management Act (DMA) 2022 sets out legal framework for disaster management in Tanzania. It provides for the establishment of a national focal point for coordination of disaster risk reduction and management in Tanzania through the Tanzania Disaster Management Agency (TDMA), acting as the central planning, coordinating, and monitoring institution for the prevention, mitigation, preparedness, response and post disaster recovery under the Prime Minister Office (PMO).

Though The Government, as observed in the current disaster management legislations and strategies, has initiated the process of institutional and legal systems reforms for disaster management and emergency response like strengthening the Disaster Management Unit and set funds to finance the implementation of this unit (URT, 2022), the Tanzania Fire and Rescue force has been granted a permission to seek soft loans for staff training, purchasing new fire firefighting and rescue equipment to enhance its capacity to deal with complex incidents, and carter for the long time public demand for good services, there have been a challenge faced in the way the government and its institutions are dealing with disasters and other emergencies. There has been a competitive motive among the institutions rooted in their legal establishment and guidelines in implementing their responsibilities that need to be researched and develop feasible and effective legal and institutional arrangements for disaster management and emergency response in Tanzania.

Objectives of the Study

This study aims at analyzing the disaster management and emergency response institutional and legal frameworks in Tanzania, both public and private, their awareness on their roles and responsibilities, and how they correlate with each other in executing their duties. According to this, the specific objectives are:

a) To examine the key strengths and gaps in the existing disaster management and emergency response legal and institutional frameworks in Tanzania.
b) To provide insights and progressive recommendations on legal and institutional frameworks for disaster management and emergency response in Tanzania;
c) To inform the policy and legislation making process on disaster management and response in Tanzania.

LITERATURE REVIEW

Theoretical Literature Review

Institutional Theory

Institutional Theory by Williams et al. (2009), explores how institutional structures, regulations, and norms influence organizational behavior and compliance. It examines how various systems and legislations acquire authority and legitimacy, and how individuals' behaviour and communication are affected (Kauppi, (2022); while (2020) asserts that the three pillars of the institutional theory are normative (social norms and values), cognitive (common beliefs and knowledge), and regulative (rules and regulations). That implies that regardless of the time it was first established by theory, it is particularly relevant for understanding compliance with disaster management legislation and strategies, as it examines how organizations adhere to formal rules and practices shaped by governmental and institutional frameworks. In the context of disaster management, institutional theory posits that the pressures and expectations from formal institutions such as government bodies, international organizations, and regulatory agencies drive compliance. These institutions establish guidelines and standards that organizations must follow to ensure effective disaster preparedness and response. The overview of the emergency management system and the summary of potential hazards show the complexity and multifaceted nature of compliance. For instance, the study by Contreras et al. (2020), underscores how geospatial and socio-economic factors influence compliance with risk reduction measures. Institutional Theory helps to analyze how well these laws and strategies are integrated into disaster management practices and whether they address the diverse hazards identified in the country. The theory also addresses the legitimacy and normative pressures faced by organizations, which affect their commitment to complying with disaster management policies. By assessing the levels of compliance and the extent to which disaster management strategies are incorporated into organizational practices, institutional theory provides a framework for understanding the effectiveness of disaster management systems in aligning with legislative requirements (Gupta et al., 2021).

Complexity Theory

Complexity Theory by Sohn et al. (2023), examines how complex systems with interdependent components interact and adapt in response to dynamic and unpredictable environments. This theory is pertinent for understanding the mismatch between knowledge, skills, and practices in disaster management. Disasters are inherently complex, involving numerous variables and unpredictable elements that challenge conventional response strategies. According to Complexity Theory, the effectiveness of disaster management is influenced by the ability of organizations and communities to adapt and respond to the dynamic nature of disasters. The theory emphasizes the importance of understanding the intricate relationships between knowledge, skills, and practices in managing disasters. The findings from the literature, such as those from Cavallo et al. (2014), reveal that disasters are complex and unpredictable, necessitating a sophisticated understanding of risks and responses. Complexity theory can analyse the mismatch between knowledge, skills, and practices by examining how well disaster management systems adapt to changing conditions and integrate new information and techniques. The theory explains how gaps in knowledge and practices can affect disaster response and highlights the importance of continuous learning and adaptation in disaster management.

Network Theory

Network Theory by Jin et al. (2014), focuses on the interactions and relationships among various actors within a network and how these interactions influence outcomes. This theory is essential for understanding the roles of institutional frameworks and collaborative strategies in disaster management. Network theory explores how different institutions, organizations, and stakeholders collaborate and coordinate their efforts to enhance response and recovery capabilities in disaster management. The roles of institutional frameworks, as discussed in the literature, involve integrating various actors, including government agencies, NGOs, and private sector organizations, to create a cohesive disaster management system. The study of past disaster experiences and the roles of institutional frameworks in collaborative strategies are

well-suited to Network Theory, which analyzes how effective communication, coordination, and resource sharing among stakeholders contribute to successful disaster management. By examining how institutions work together and the impact of these collaborations on disaster response, Network Theory provides a framework for evaluating the effectiveness of collaborative strategies and institutional roles in disaster management (Quarshie et al., 2020).

Systems Theory

Systems Theory by Gong et al. (2014), examines the components of a system, their interactions, and the system's overall functioning. This theory is highly relevant for the development of assessment indices for disaster management and emergency response capabilities. In disaster management, systems theory helps to understand how different components, such as policies, resources, and operational mechanisms, interact to form a comprehensive disaster management system. Developing assessment indices involves evaluating these components to determine their effectiveness and identify areas for improvement. The emergency management framework, hazards distributions, and past disaster experiences provide the basis for developing assessment indices. Systems Theory allows for an analysis of how well these components are integrated and how they contribute to the overall disaster management capabilities. By examining the interactions between various elements of the disaster management system, Systems Theory helps to design assessment indices that accurately reflect the system's strengths and weaknesses (Carvalhaes et al., 2021).

The theoretical framework for this study incorporates institutional theory to address compliance with disaster management legislation, complexity theory to explore the mismatch of knowledge and practices, network theory to understand the roles of institutional frameworks and collaborative strategies, and systems theory to guide the development of assessment indices. These theories provide a comprehensive basis for analyzing Tanzania's disaster management and emergency response capabilities.

Empirical Literature Review

The Context of Disasters

The major target of disaster management actions is to minimize the extent of disaster impacts to the community concerning the prior condition of the disaster. There are various activities performed by the actors in the whole process of disaster management that have significant contributions from pre–disaster, during disaster and post-disaster with the focus of reducing the impact of disaster to the affected community. However, the way natural disasters occur, may significantly affect the achievement of the efforts implemented to deal with them.

Donahue and Joyce, (2001) and Waugh, (2000) identified and described five key features of disasters that illustrate the extent of hardship to deal with them and overcome their impacts.

i. Disasters are complex, fast occurring incidents that are relatively costly compared to the size, assets, capabilities, and resources of an affected community.
ii. Disasters and their outcomes are unpredictable. This uncertainty results from the difficulty in identifying hazards that pose a risk of disaster, the lack of understanding regarding the causal relationship between hazards and disaster events, and the difficulty in measuring risks, which includes determining the type, extent, and likelihood of a particular type and severity of damage. In order to better prepare for events, geospatial models can assist in forecasting their locations, footprints, times, durations, and potential damage.
iii. Disaster Risks and opportunities are hard and complex phenomena to evaluate and assess. People tend to settle in scenic and disaster vulnerable areas and regularly violate government policies and regulations.
iv. Disasters are dynamic and evolve with time and places as they transform over time in response to human behaviour and natural forces. These behaviours affect response mechanism and strategies deployed to normal accidents and incidents by responders and the communities.

Disasters are relatively uncommon as most people have less experience to disaster in their lifetime. Even politicians and decision makers are rarely face disasters or complex events that might require excessive resources, time, and attention to deal with them. With that effect, governments may have

insufficient personnel and experience allocating resources and preparing policies and strategies for disaster risk management and emergency response capabilities even though the hazards and risk are vivid and terrible (National Research Council, 2007).

However, Tanzania has experienced various disasters and emergencies that have attracted the attention of Government and various stakeholders that led to the legal reforms and restructuring of government departments, ministries and agencies at different times. The following section describe major potential hazards in Tanzania and past disasters that have occurred and experienced.

Major Potential Hazards in Tanzania

Tanzania is prone to natural, and human made disasters (Table 1) that affect livelihoods destroy infrastructure and cause socio-economic problems to the society including food insecurity and health problems. Regular and emerging disaster risks underline the need to strengthen national structures at all levels of administration to mitigate and minimize the risks, to be prepared for potential disasters and to support the building and strengthening the sustainable capacities to manage and respond to disasters if they occur (Martin and Mwase 2011).

TABLE 1
SUMMARY OF POTENTIAL HAZARDS IN TANZANIA (ADOPTED FROM TEPRP)

SN	Natural	Man made
1	Flood	Fire Outbreak
2	Drought	Road Accidents
3	Cyclones	Terrorism
4	Earthquake	Proliferation of Unplanned Settlements
5	Lightning	Environmental Degradation and Pollution
6	Landslides	Marine Accidents and Oil Spill
7	Tsunami	Collapse of Buildings
8	Strong Winds	Power Failure
9	Beach erosion	Civil Disorder
10	Epidemics (COVID 19, Cholera, Rift Valley Fever, Bird Flu, Food Poisoning, Swine Flu, etc)	Aircraft Accidents
11	Animal Disease outbreak (Anthrax, Beak Quarter, Foot and Mouth disease, lumpy Skin etc)	Hazardous Material (including radioactive material).
12	Pest Infestation	Industrial Disasters

From the list above, natural disasters like drought, floods, and epidemics are the main natural hazards that impact most severely on Tanzania population recently and in the past. Covid 19 for example up to February 2022 there were 33,549 reported cases and 796 deaths (world life expectancy, 2022). On the other hand, traffic road accidents and fires are among the top man-made or technological hazards that have affected Tanzanian Population in the recent years, of which road accidents have caused 40,453 deaths, and left several others injured and destruction of properties (URT, 2024).

In addition, the SADRI (2020) study found that severe and recurrent droughts are a usual occurrence in Tanzania. The study found that the past 30 years Tanzania have faced six major droughts (Table 2). Unpredictable rainfall, shifting agro-ecological zones and increased dry periods reduce food crop production while boosting other crops' production. Drought is estimated to affect 4.8 million people on average each year. Impacts on water resources are expected to include changes in runoff in river basins, leading to changes in downstream water availability and timing, water pollution and disturbances of stream ecosystems. Hydropower production is projected to decrease, mainly due to increased evaporation, with negative impacts on social economic sectors including industrial production and health sectors.

TABLE 2
MAJOR DROUGHTS IN TANZANIA

Year	Location	Affected Population
1988	**Lindi Region**	**110,000**
1990	Central and Northern regions	800,000
1996	Lake Victoria, North east, Coastal region Kaskazini Unguja, Mjini Magharibi, Kusini	3 million
2003	Unguja, Singida, Dodoma, Shiyanga, Mwanza, Tabora, Kagera, Kigoma provinces Arusha, Kilimanjaro, Manyara, Tanga provinces	1.9 million
2004	(Northern Highlands region), Pwani, Dar es Salaam provinces (Northern Coast region)	254,000
2006	Arusha, Manyara, Kilimanjaro provinces	3.7 million
2011	Ngorongoro district (Arusha province), Simanjiro district (Manyara province), Same, Rombo, Mwanga districts (Kilimanjaro province)	1 million

(Source: EM-DAT, 2020)

Distribution of Major Hazards in Tanzania

The department for Disaster Management (2012), divided Tanzania with seven (7) zones as shown in Table 3. The division indicate that zone 1, 2, and 4 each has five types of hazards while zone 3 has seven hazards and zone 5 has 3 hazards. Zone 6 has four types of hazards and zone 7 has six (6) types of hazards. The common types of hazards occurring in all zones are disease outbreaks, drought, and pests.

TABLE 3
HAZARD DISTRIBUTION BY AGRO-ECOLOGICAL REGIONS IN TANZANIA

SN	Zone	Regions	Main types of hazards
1	Coastal	Dar es Salaam, Pwani, Parts of Tanga, Lindi and Mtwara	Pests, Drought, Disease outbreaks, Floods and landslides
2	Eastern plateau and mountain blocks	Parts of Kilimanjaro, Tanga, Morogoro, Lindi, Mtwara, Dodoma, Ruvuma and Manyara	Pests, Disease outbreaks, Drought, strong winds, Earth quacks
3	Southern Highlands	Parts of Morogoro, Lindi and Ruvuma	Pests, Disease outbreaks, Drought, Floods, Earth quacks, strong winds
4	Northern rift valley and volcanic lands	Arusha, parts of Mara and Manyara	Pests, Drought, Disease outbreaks, and Floods
5	Central plateau	Singida, Tabora, large part of Dodoma, Part of Kigoma, small part of Mbeya and Iringa, Shinyanga, Mwanza and part of Mara	Disease outbreaks, Drought and Pests
6	Rukwa-Ruaha rift zone	Parts of Sumbawanga, Tabora, Mbeya and Iringa	Disease outbreaks, Drought, Fire and Pests
7	Inland sedimentary plateau, Ufipa plateau and western highlands	Parts of Sumbawanga, Kigoma and Kagera	Pests, Disease outbreaks, Drought, Fire, strong winds and floods

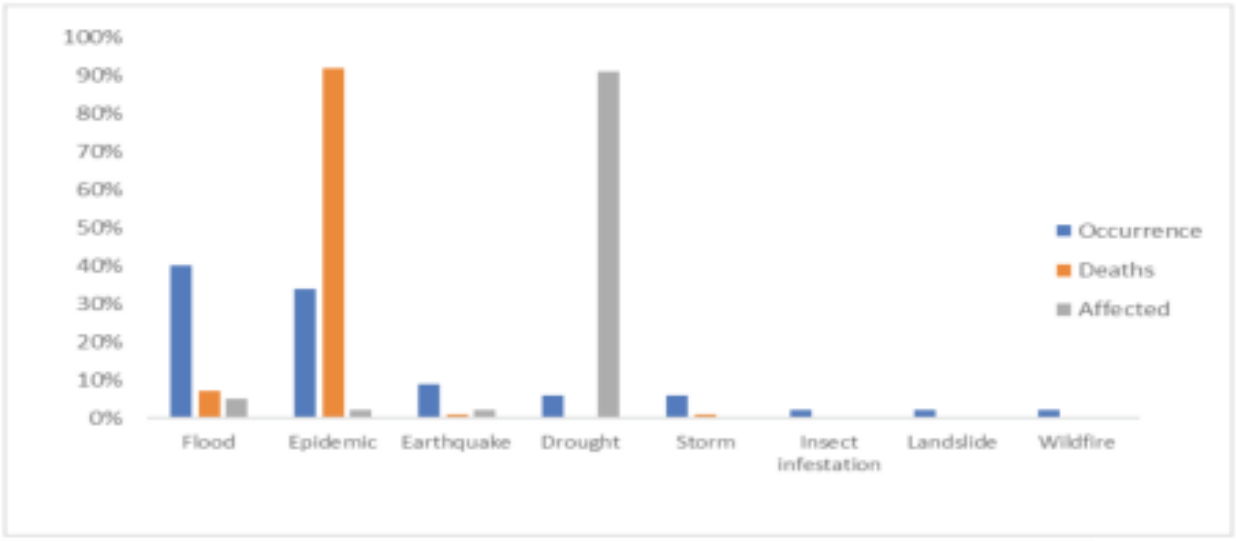
Source: DMD - Prime Minister's Office

On the other hands, technological accidents like fires, road accidents and marine accidents are common in Tanzania, and they do claim lives and injuries to thousands of people (Hamis, and Juma, 2019). According to Fire and Rescue Force Report (2021), there were 3,456 fire incidents and 15,000 rescue operations incidents (FRF 2022). According to world life expectance report (2022), the 5% of all deaths are caused by road accidents.

Past Disasters Experiences

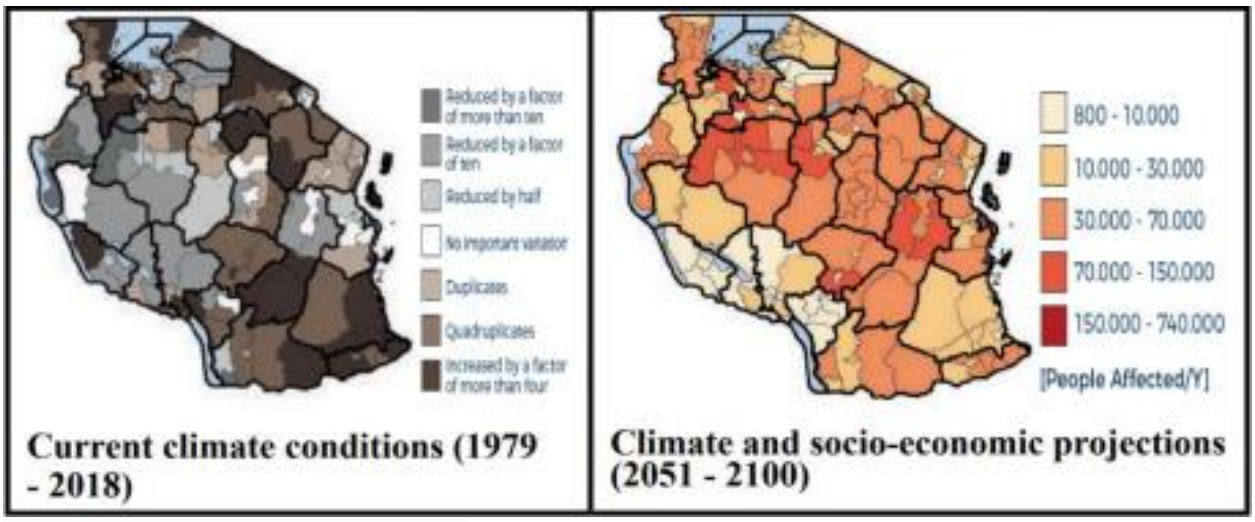
According to the Emergency Events Database (EM-DAT), in the two decades between 1997 and 2017, Tanzania experienced 65 major, intensive events (low frequency and high severity) and a total of 357 events of an extensive nature (frequent but of small to medium severity), as reported by local administrative units and recorded in UNDRR's Disaster Information Management System (DesInventar) database as shown in figure 1 below while figure 2 indicates areas recently affected by drought and future climate conditions. According to EM-DAT data, the primary natural hazard causes of major disasters over this 20-year period were floods (40%), epidemics (34%), earthquakes (9%), droughts (6%) and storms (6%) (UNDRR, 2018). Epidemics have caused the great majority of disaster-related deaths (92%) (UNDRR, 2018). Droughts, on the other hand, have affected a larger number of people in the past two decades, 91% of cases where people required immediate assistance were because of drought (Haulle, 2012).

FIGURE 1
SHARE OF OCCURRENCE, DEATHS AND AFFECTED PEOPLE IN RESPECTIVE TOTAL (1997-2017)



Source: EM-DAT: The Emergency Events Database- Universite Catholique de Louvain – CRED 2018

FIGURE 2
AREAS RECENTLY AFFECTED BY DROUGHT AND FUTURE CLIMATE CONDITIONS



Source: PMO, UNDRR and CIMA, 2019

In addition, the government identified several areas around the country have experienced flooding; from 2015 to 2020, these events destroyed 50,588 dwellings, claimed 307 lives, and affected 317,907 more (URT, 2022). The regions most affected by flood are Morogoro Dar es Salaam, Kilimanjaro, Dodoma, Kigoma, Rukwa, Pwani, Lindi, Mtwara, Iringa, Tanga Mwanza, and Morogoro. 2015 rains in Kahama area killed 47 people, damaged 634 dwellings and affected 3,500 more. In 2015-6, El Niño had a direct impact on 84,643 people in Mwanza, Mtwara, Pwani Rufiji areas and Iringa Municipal destroyed 1006 homes, 11, 11,167.4 hectares of food crops, health facilities, roads, and other public infrastructures (URT, 2022).

Legal and Institutional Framework for Disaster Management and Emergency Response in Tanzania

Legal and Policy Arrangement

The Disaster Management Act (DMA), 2022, sets out a comprehensive legal framework for disaster risk management in Tanzania. It provides for the establishment of a national focal point for coordination of disaster risk reduction and management in the country through the Tanzania Disaster Management Agency (TDMA), acting as the central planning, coordinating, and monitoring institution for the prevention, mitigation, preparedness, response and post disaster recovery, considering all potential disaster risks. Currently this role is covered by the Prime Minister Office (PMO). The Tanzania Disaster Management Council (TADMAC) provides advice on any disaster-related issue as specified by the Act to the minister in charge of Disaster Management or any sectoral ministry.

In addition, disaster risk management in Tanzania is governed by the National Disaster Management Policy (2004), which aims to operationalise an effective and efficient disaster management system to minimize possibilities of loss of life, property, and environment. Other disaster management policy tools include the National Operational Guidelines for Disaster Management, Tanzania Emergency Preparedness and Response Plan (TEPRP) and Tanzania Disaster Communication Strategy (TDCS) though implementing these plans in all levels that were supposed to exist is slow across the country.

Also, there have been initiatives for capacity building in 20 districts between 2011 and 2018 that have Emergency Preparedness and Response plans. However, the initiatives are slowly implemented and not extended to other districts, as well as incorporating multi disaster response plans into those plans.

National Operational Guidelines define responsibilities/mandates of various stakeholders in responding to various areas of disasters management cycle including mitigation, preparedness, response, and recovery. The guidelines have identified most common hazards in the country and have earmarked Lead and Support Agencies in handling them. Each Lead Agency is responsible for activating its own plans.

Further Tanzania has developed the National Emergency Preparedness and Response Plans that provide guidelines for coordination and response to various disasters and emergencies at all levels of the government. The plan aimed to facilitate the coordination for the delivery of resources and services necessary to deal with the consequences of an emergency or major disaster.

The plan intends to deal with emergencies and major disasters that create needs and cause suffering that the affected community(s) cannot respond without assistance, requiring an extraordinary commitment of national resources.

Moreover, the Tanzania Disaster Relief Committee (TANDREC) is operational since 1990s at the national levels and its members are Permanent Secretaries from Ministries of Finance, Home Affairs, Water and Livestock, Defence, Lands, Agriculture, Planning, Education, Communication, Works, Community Development, Energy and Minerals and CEOs of Tanzania Meteorological Agency (TMA), Fire and Rescue Force and Food Security Department as early warning institutions. Its main function is to oversee and coordinate activities of the Government designed to secure effective prevention of disasters, preparedness, and operations in an event of a disaster.

Additionally, in order to assist national and local governments in improving the management of urban climate risk, Tanzania, the World Bank Group, and the UK Department for International Development (DFID) partnered to create the Tanzania Urban Resilience Program (TURP) in 2016 (World Bank, 2019). Officially launched on May 31, 2017, TURP is now driving renewed engagement and deeper dialogue between the Bank and Tanzania on climate resilience with a comprehensive strategy addressing risk identification, risk reduction, and emergency preparedness (TURP, 2018).

Emergency Response Management

This section provides a detailed account of Tanzania's emergency management system, particularly focusing on Dar es Salaam and how it reflects the national scenario. It discusses the impact of rapid urbanization, infrastructure challenges, and population growth on disaster management compliance. It shows the importance of alignment with national policies and international standards to ensure effective disaster management and emergency response.

Cities are susceptible to both natural calamities and manmade hazards, mainly due to over population that people tend to contrite in one area, infrastructure, and economic resources. Major cities and emerging cities in developing countries face same threats and hazards like climate change, as vulnerable populations tend to be focused in high-risk areas (C40 Cities Finance Facility (CFF) (2020). These cities, more than 70% 0f the population is living in the unplanned settlements and rapid urbanization without proper town planning. The cities attract more people from rural areas and migrants from other countries who settle in low-income areas with no proper settlement planning. Due to the lack of affordable housing near the cities' centres where people tend to settle nearby, there are growth of settlement in flood prone areas with poor housing and other social requirements.

In addition, the infrastructure developments like roads, water and electrical supplies, are not parallel to the population growth and urbanization that cause the shortage of supplies and insignificant life quality and basic requirements. Settling in an open expanse of land on a floodplain is often the only option.

That, with the emerging of new inventions, population growth, climate change, and rapid economic development with industrialization, natural hazards like floods and earthquakes and drought, unplanned urbanization and settlements, Tanzanian's major cities in particular dare s Salaam is at high risk of both manmade and natural disasters (Baxt, 1992). The government officials and policy makers must respond to the expected calamities to come by making informed decisions by understanding the very nature of those calamities and their adverse impacts to the community and come up with mitigation measures, policies, budgets, and strategies to limit or reduce their impacts and how the community can adopt with them.

Emergency Management and Response Framework

Emergency management and response strategies have changed over time to the diversified policy structures and systems that have been implemented as a system expressed as emergency management and response system. Contemporary practices for emergency management and response engage multidimensional endeavours to decrease and mitigate hazards vulnerability; to reduce the impact of disasters; and to prepare and respond to, and recovery from disasters that might happen. The government is responsible to deal with challenges caused by disasters as they come with undesirable demands that might affect the process of decision making and service delivery structure and infrastructure of the affected community as responding to disaster demand extra resources that might beyond the government capability and capacity to afford on time (Gooding. et al, 2022).

Also, since disasters have significant socio-economic and physio-geographic impact to the community and government, geospatial needs and capabilities are fixed in the entire system. This is supported by study conducted in Mwanza by Hambati and Yengoh, (2018) found that the residential locations and the socio-economic status of residential owners have influenced pre-and post-disaster risk reduction measures. The challenge of reducing disaster risks involves understanding of the role of non-infrastructure features that encourage urban resilience to natural disasters while the current resilience measures are based on developing physical infrastructure.

Literatures on Legal and Institutional Frameworks in Disaster Risk Management and Emergency Response

The study carried by Mlingwa, (2024) found that the institutional and legal issues pose challenges in implementing effective disaster management and emergency response operations. The challenges identified include a lack of funding for disaster management and inadequate public participation and insufficient integration of stakeholders and local communities. This study recommended institutional and legal reforms to enhance wider stakeholder and community involvement in disaster management, though the study failed to pinpoint the areas that need major reform to enhance the disaster management in Tanzania.

In addition, Bang, (2021), ascertained that it is normal practice for central government to intervene and assist the local governments or institutions that are responsible for emergency response when the situation/ disaster seems to escalate beyond their capabilities. The resources, capabilities and assets may be called from nongovernmental institutions to support the government's effort. That, emergency management and response are essentially intergovernmental and cross - sector strategic implementation process that requires

jointly mechanism and well-defined system – legal and institutional arrangement- to allow smooth operations and service delivery during emergencies.

Furthermore, the study by Herwig and Simoncin, (2017) pinpointed that the well-defined legislative framework and arrangement are the significant features for disaster management and emergency response systems as they set out norms, and defines the roles and responsibilities of the pertinent stakeholders. It is significant for government institutions that are responsible for disaster management and emergency response operations to understand the established legal and institutional arrangement for better execution of their duties especially on incidents that involve more than one actor (Nji et al.,2022).

On the other hand, Majamba (2022) found that there are established legal framework and institutional arrangements for disaster management in Tanzania and other developing countries, but they lack international and regional recommendations on mechanism to engage formal and informal actors in disaster management and response system. With that observation, the study recommended emphasised the significant of improving disaster management and emergency response systems.

METHODOLOGY

This study adopted an in-depth research design that integrates both qualitative and quantitative methodologies to comprehensively address the research objectives and questions. Primary data were collected through questionnaires, focus group discussions, and structured interviews, while secondary data were collected from critical analysis of various documents, records, and expert consultations. This mixed-method approach was selected to enhance validity and reliability and to offer a more nuanced understanding of the research focus compared to other data collection methods like surveys alone (Taylor et al., 2011).

The interviews were conducted to officers from the Disaster Management Unit under the PMO, Disaster management center at the Ardhi University, Fire and rescue Force Offices of Ilala and Temeke and Officers from Ubungo and Kinondoni Municipals. Disaster and emergency response data from reports and demographic information were used in the quantitative analysis, whereas the qualitative analysis utilises interview data, focus group discussion.

The content analysis included an assessment of emergency response and disaster management's legal and institutional frameworks and their implementation compared to best practices in the international arena and international development agencies. the documentary analysis involved the collection of information and data from existing reports and documents on emergency response in developing countries in relation to practices in developed countries. These included a variety of documents for analysis, like formal reports, different articles, and books (Morgan, 2022). These documents provided crucial information as they cover various information sources, time spans, and various events and settings (Dalglish et al., 2020).

Further, this study deployed a non-probability sampling design in which the respondents were chosen based on accessibility. This design was preferred because it allows the study to collect information from both primary and secondary sources that were pursued to be reliable, suitable, and adequate to meet the purpose of this study. The disaster management and emergency response officers from both government and private emergency institutions were purposefully contacted for interviews and questionnaires. The same design was used to select officers at the Disaster Management Training Centre (DMTC), disaster management experts and town planners at three municipals in Dar es Salaam, fire rescue force personnel, disaster management call centers, and the Department for Disaster Management Unity at prime ministers.

Also, convenient sampling design was used to select respondents from the Tanzania Ports Authority and students from Bandari College, where the random sampling was deployed to students while in their group discussions, seminars, and classes after arrangement with their lecturers. In addition, Tanzania Ports Authority personnel were contacted through their emails and WhatsApp messenger groups, where the questionnaires were shared and requested to be filled out online. This technique enabled the study to reach satisfactory respondents whose responses enabled the collection of information from a satisfactory number of respondents in a short period of time as planned by the study.

RESULT AND DISCUSSION

Legal and Institutional Frameworks and Their Influence in Disaster Management and Emergency Response

The findings concerning the institutional frameworks and how they influence each other in disaster management and emergency response operations are presented in Table 4. The statement "Institutional frameworks in Tanzania significantly influence collaborative disaster management strategies" received a mean score of 2.76, with a standard deviation of 0.506. This score, situated below the "Neutral" midpoint on the Likert scale, suggests a moderate perception that institutional frameworks significantly impact collaborative disaster management strategies. A mean score of 2.76 indicates that, while there is some acknowledgement of the influence of institutional frameworks, the overall perception is that their impact might be limited or not as substantial as desired. This could be due to various factors such as ineffective implementation, lack of integration among frameworks, or insufficient support for collaborative initiatives (Alderwick et al., 2021).

The relatively low mean shows concerns that institutional frameworks might not be fully leveraging their potential to promote collaboration among disaster management stakeholders (Yousefian et al., 2021). The standard deviation of 0.506 reveals moderate variability in responses, indicating that there are diverse opinions on the effectiveness of institutional frameworks. Some respondents may perceive a strong influence, while others may see limited impact. This variability suggests that the role of institutional frameworks in influencing collaborative strategies is experienced differently by individuals based on their specific roles, experiences, or interactions with these frameworks Howlett, M. et al (2015).

The statement "Institutional frameworks facilitate effective coordination among various disaster management agencies" has a mean score of 2.93, with a standard deviation of 0.414. This score, just below "Neutral," reflects a perception that institutional frameworks are somewhat effective in facilitating coordination among disaster management agencies. A mean score of 2.93 suggests that while there is recognition of some level of facilitation, respondents generally feel that coordination might not be as effective as it should be. This perception could indicate that institutional frameworks, while present, may not fully support or enhance coordination efforts due to issues such as fragmented policies, insufficient communication channels, or lack of clear guidelines for collaboration (Singh et al., 2011). The lower standard deviation of 0.414 implies a relatively consistent view among respondents regarding the effectiveness of institutional frameworks in facilitating coordination, suggesting that the concern about inadequate coordination is widely shared. The perceived limitations in coordination could hinder the overall effectiveness of disaster management efforts, as effective coordination is critical for a timely and efficient response to emergencies. Strengthening institutional frameworks to better facilitate coordination among agencies could improve collaborative efforts and enhance disaster management outcomes (Medel et al., 2020).

The statement "The roles of institutional frameworks are clearly defined in policy development for disaster management" received a mean score of 3.03, with a standard deviation of 0.400. This score, slightly above "Neutral," indicates that there is a moderate perception that the roles of institutional frameworks in policy development are defined, but not strongly perceived as clear or comprehensive. A mean score of 3.03 suggests that respondents acknowledge some level of clarity in the roles of institutional frameworks, but may believe there is room for improvement. This moderate score might reflect a situation where roles are somewhat defined but lack detail, consistency, or effectiveness in guiding policy development (Muff et al., 2020). The relatively low standard deviation of 0.400 indicates a high level of agreement among respondents, suggesting that the perceived clarity of roles is a common concern. A clear definition of roles is essential for effective policy development, as it helps delineate responsibilities and ensure that all stakeholders understand their contributions to disaster management. Improving the clarity of roles within institutional frameworks could lead to more effective policy development and better overall disaster management strategies (Albris et al., 2020).

The statement "Collaborative efforts in disaster management are enhanced by well-established institutional frameworks" received a mean score of 2.96, with a standard deviation of 0.633. This score,

just below "Neutral," indicates that respondents have a somewhat favourable view of the role of institutional frameworks in enhancing collaborative efforts, but the perception is not strongly positive. A mean score of 2.96 suggests that while well-established institutional frameworks have some potential to enhance collaboration, the actual impact might be limited. This could be due to issues such as insufficient integration of frameworks, lack of support for collaborative initiatives, or ineffective implementation of collaborative strategies (Rawlinson et al., 2021).

In addition, the higher standard deviation of 0.633 indicates greater variability in responses, suggesting that perceptions of the effectiveness of institutional frameworks in enhancing collaboration differ widely among respondents. The variability in responses shows that while some respondents may see significant benefits from established frameworks, others may find them lacking in their ability to support collaborative efforts effectively (Kalkman et.al. 2017). Addressing the issues that contribute to this variability could improve the role of institutional frameworks in promoting collaboration and enhance the overall effectiveness of disaster management strategies (Oh et al., 2020). The data on institutional frameworks' roles in disaster management reveals several areas of concern and potential improvement. The perceptions of their influence, coordination facilitation, role clarity, and enhancement of collaborative efforts suggest that while institutional frameworks are recognized for their role in disaster management, some significant gaps and limitations need to be addressed (Bovens, M. 2018).

To improve disaster management and emergency response effectiveness, it is critical to strengthen institutional frameworks by increasing their influence on collaborative strategies, improving coordination among agencies, clarifying roles in policy development, and ensuring that they effectively support collaborative efforts. Addressing these issues could lead to more integrated and efficient disaster management practices, ultimately enhancing the overall ability to respond to and manage disasters effectively (Abid et al., 2021).

TABLE 4
THE ROLES OF INSTITUTIONAL FRAMEWORKS AND THEIR INFLUENCE ON COLLABORATIVE STRATEGIES AND PLANS IN DISASTER MANAGEMENT AND EMERGENCY RESPONSE

	Parameters	N	Mean	Std. deviation
IF1	Institutional frameworks in Tanzania significantly influence collaborative disaster management strategies.	200	2.76	0.506
IF2	Institutional frameworks facilitate effective coordination among various disaster management agencies.	200	2.93	0.414
IF3	The roles of institutional frameworks are clearly defined in policy development for disaster management.	200	3.03	0.400
IF4	Collaborative efforts in disaster management are enhanced by well-established institutional frameworks.	200	2.96	0.633

Source: Field Data (2024).

The role of institutional frameworks in shaping collaborative strategies and plans in disaster management and emergency response is pivotal. Based on the data collected from various institutions such as the DMU Prime Minister's Office, DARMART, Fire and Rescue Force, TAMISEMI, and private

emergency response companies like the Red Cross, several key aspects emerge regarding the effectiveness and influence of these frameworks.

Requirements and Provisions Issued by Legislation, Strategies, and Plans

The disaster management and emergency response legislations in Tanzania, such as the Disaster Management Act, the National Disaster Management Policy, and the Tanzania National Contingency Plan, outline several key requirements and provisions. These include: while organizations are required to develop and maintain contingency plans for various types of disasters, establishing disaster management committees at various administrative levels is responsible for coordinating disaster management activities (Mlingwa, E. 2024). Training and capacity building and resource allocation for preparedness, response, and recovery activities. The respondent from the PMO emphasized, "legislations mandate the creation of comprehensive disaster management frameworks, which include the formation of committees and development of contingency plans. These requirements are essential for effective disaster response."

Engagement of Key Players in Formulation Process

The involvement of key players such as the Fire and Rescue Force, Red Cross, and TAMISEMI is crucial in the formulation process. The Fire and Rescue Force emphasized the importance of inter agency cooperation, stating, "We collaborate closely with other organizations to develop and refine our disaster management strategies, ensuring that they are practical and applicable in real world scenarios." The Red Cross and Green Crescent also play significant roles, particularly in integrating humanitarian perspectives and logistical support into the policies. The Red Cross respondent shown, "Our input focuses on ensuring that emergency response plans are aligned with humanitarian principles and can be effectively implemented during crises.".

Use of ICT and Integrated Network

Information and communication technology (ICT) is a modern disaster management and emergency response cornerstone. Institutions utilize ICT to enhance their operational efficiency and communication capabilities (Abid, S. K. et al, 2021). The Fire and Rescue Force shown that "our systems rely heavily on ICT for real-time coordination and data sharing during emergencies." ICT enables rapid information dissemination, critical for timely response and resource allocation. Similarly, the Red Cross emphasized the importance of "leveraging ICT to improve data management and communication channels, ensuring that our responses are swift and well-coordinated."

In addition, the effectiveness of disaster response is significantly enhanced by shared network systems for incident notifications (Vaughan, D. 1996). These systems ensure that all relevant parties receive timely updates about ongoing incidents. The data indicates that while most organizations have established shared networks, the integration and interoperability of these systems can be challenging. The respondent from TAMISEMI noted, "Shared network systems are crucial, but the lack of standardization across different organizations can sometimes lead to communication gaps."

The integration of ICT enables real-time incident notifications and facilitates coordination among various agencies. Shared networks support efficient data exchange and communication, which are essential for timely and accurate responses. However, challenges such as limited technological infrastructure and funding constraints affect the effectiveness of these systems. Some organizations may lack the necessary technology or resources to fully implement these systems, leading to gaps in communication and coordination (Nowell, B et al, 2020).

The Implication of the Legal and Institutional Arrangements for Disaster Management and Emergency Response in Tanzania

The report published by the United Nations Office for Disaster Risk Reduction (UNDRR) in 2020 with the main focus on risk sensitive budget review for Tanzania, indicated that in the National budget of the financial year 2018/19 there were 226 projects and activities related to disaster management that were managed by 176 different departments under 28 ministries, offices or commissions at national level and 29

regions as indicated in the table 13 below (URT, 2018). This tendency tends to affect the implementation of the programs and yield the intended goals as there are competition on resources among the institutions.

In addition, as noted in the previous section, several government institutions and departments have been established and mandated to deal with emergencies and disasters in Tanzania that contradict each other in the practice. With 176 departments budgeting for the same issues might lead to misallocation of funds and hinder emergency response operations by the first responders. Each department has their own goals and strategies that are not in the same line as the other.

Further, by having several institutions with the similar roles or obligations, might lead to delay of emergency response operations due to insufficient resources to the immediate institutions especially first responders like rescue services and firefighting. This was born or the realization that although some structures and systems already existed, a more robust and standardized approach is required to upgrade and integrate their activities and capacities and to focus on disaster risk reduction and preparedness measures rather than on emergency response (Uddin, M. S., et all, 2021; Vargas, I. et al 2020).

Also, there are radios and television programs aired in the national media including public and private media that are prepared and jointly conducted by Information Officers and a Officers from disaster departments, the target groups are ordinary people both urban and rural that are likely not aware of the message conveyed.

Moreover, formulating disaster management and emergency response legislation, strategies, policies, and plans in Tanzania need to utilize a multi-stakeholder approach to integrate inputs from various governmental and non-governmental entities. The Disaster Management Act (2022), the National Disaster Management Policy (2014), and the draft of Tanzania National Contingency Plan (2012) are key documents that outline stakeholders' roles and responsibilities, according to the data collected. The DMU Prime Minister's Office and DARMART are central in formulating these documents, ensuring they align with national priorities and international standards (Wang, Y. et al, 2021). The respondent from DMU noted, "Our role involves synthesizing input from various sectors to create comprehensive disaster management frameworks that can address both immediate and long-term needs." The collective efforts of stakeholders mark the formulation process, which includes extensive consultations and drafting sessions. For example, as a key operational entity, the Fire and Rescue Force contributes valuable information about the practical needs and challenges faced during disasters, which informs the legislative and policy frameworks (Andreassen, N 2020).

That Disaster thinking needs to be integrated into all development planning and become the responsibility of all institutions not as a subsector of its own. The indigenous initiatives and disaster response mechanisms are needed to be strengthened by all modern initiatives for disaster management and emergency response systems (Yousefian, S et al, 2021).

The findings of this study provide valuable data on Tanzania's disaster management and emergency response frameworks. These data have several important implications for enhancing disaster management practices and addressing current challenges (Zhang, K., & Lee, J. E. 2024). Both quantitative data and qualitative observations offer a comprehensive perspective on the implications for coordination, resource allocation, and policy review.

One of the primary implications of this study is the need for improved coordination among stakeholders involved in disaster management. This research shows the importance of strengthening inter-agency collaboration and integrating diverse resources and expertise to enhance overall response capabilities (AlHinai, Y. S. 2020). The quantitative data reveal that while institutional frameworks are crucial for disaster management, their effectiveness is impacted by technological and resource constraints.

CONCLUSION AND RECOMMENDATIONS

Conclusion

While Tanzania has established a robust framework for disaster management and emergency response, significant improvements are still needed. The clarity and adequacy of legislation are generally good, but practical challenges such as complexity and resource limitations affect their implementation. Compliance

levels are variable, influenced by directive complexity and resource availability. Institutional frameworks play a crucial role, but technological and resource constraints impact their effectiveness. Addressing these issues through improved implementation, better resource allocation and refined assessment indices will strengthen Tanzania's disaster management and emergency response systems.

The complexity of regulations, insufficient technical expertise, and funding constraints hinder effective compliance. This study shows that although organizations are progressing in developing and updating contingency plans, challenges such as insufficient training, inadequate infrastructure, loosely coupled institutional collaboration, and complex regulations impede full compliance. Addressing these issues requires more streamlined regulations, better training programs, and improved resource allocation.

Institutional frameworks play a vital role in shaping collaborative strategies and plans for disaster management and emergency response. This study shows the importance of ICT, shared network systems, qualified personnel, and reliable transport infrastructure in enhancing disaster response capabilities.

Key organizations like the Fire and Rescue Force, Police Force, and private emergency response organizations contribute significantly by integrating their resources and expertise. The data suggest that while institutional frameworks are crucial, their effectiveness is impacted by technological and resource constraints.

Recommendations

More clarification on how government ministries, departments, and agencies (MDAs) and regional secretariats/local government authorities (RSs/LGAs) can choose risk treatment options, including the readiness and response capacity requirements, would improve the current legal and institutional arrangement for disaster management and emergency response in Tanzania (Abrash, et al 2021). This entails providing an answer to the query of the best arrangement that should be taken into account when organizing and allocating resources for disaster risks management. An agreement on disaster risk tolerance- defining the government's and communities' willingness to accept or reject a specific level of residual disaster risk- is necessary to increase disaster risk management accountability. Cross-sectoral viewpoints are crucial. When putting disaster risk management policies into practice, more focus could be put on encouraging coordination and cooperation between institutions as well as with RSs and LGAs (UN, 2023).

Improving social protection systems to include adaptive and shock-responsive measures is equally important. Tanzania's development strategy for 2021–2026 places a high priority on women's economic empowerment and gender equality (UN, 2023). When creating plans and programs, disaster management policies and strategies take gender into account. Nevertheless, the gender equality principle that directs the development of Disaster Risk Management interventions is not specifically mentioned in these most recent documents. This strategy needs to be improved.

REFERENCES

Abid, S.K., Sulaiman, N., Chan, S.W., Nazir, U., Abid, M., Han, H., & Vega-Muñoz, A. (2021). Toward an integrated disaster management approach: How artificial intelligence can boost disaster management. *Sustainability*, *13*(22), 12560. Retrieved from https://www.mdpi.com/2071-1050/13/22/12560

Abrash, W.A., Marr, J., Cahillane, M.J., & Bush, K. (2021). Building community resilience to disasters: A review of interventions to improve and measure public health outcomes in the northeastern united states. *Sustainability*, *13*(21), 11699. Retrieved from https://www.mdpi.com/2071-1050/13/21/11699

Albris, K., Lauta, K.C., & Raju, E. (2020). Strengthening governance for disaster prevention: The enhancing risk management capabilities guidelines. *International Journal of Disaster Risk Reduction*, *47*, 101647. Retrieved from https://www.sciencedirect.com/science/article/abs/pii/S221242091930771X

Alderwick, H., Hutchings, A., Briggs, A., & Mays, N. (2021). The impacts of collaboration between local health care and non-health care organizations and factors shaping how they work: A systematic review of reviews. *BMC Public Health*, *21*, 1–16. Retrieved from https://link.springer.com/article/10.1186/s12889-021-10630-1

Alem, D., Bonilla-Londono, H.F., Barbosa-Povoa, A.P., Relvas, S., Ferreira, D., & Moreno, A. (2021). Building disaster preparedness and response capacity in humanitarian supply chains using the Social Vulnerability Index. *European Journal of Operational Research*, *292*(1), 250–275. Retrieved from https://www.sciencedirect.com/science/article/abs/pii/S0377221720308924

AlHinai, Y.S. (2020). Disaster management digitally transformed: Exploring the impact and key determinants from the UK national disaster management experience. *International Journal of Disaster Risk Reduction*, *51*, 101851. Retrieved from https://www.sciencedirect.com/science/article/pii/S2212420920313534

Andreassen, N., Borch, O.J., & Sydnes, A.K. (2020). Information sharing and emergency response coordination. *Safety Science*, *130*, 104895. Retrieved from https://www.sciencedirect.com/science/article/pii/S0925753520302927

Anon. (2019). *Preparedness Index for Health Emergencies and Disasters*. Retrieved from https://iris.paho.org/handle/10665.2/51449

Appleby-Arnold, S., Brockdorff, N., & Callus, C. (2021). Developing a "culture of disaster preparedness": The citizens' view. *International Journal of Disaster Risk Reduction*, *56*, 102133. Retrieved from https://www.sciencedirect.com/science/article/pii/S2212420921000996

Bang, H.N. (2021). A gap analysis of the legislative, policy, institutional and crises management frameworks for disaster risk management in Cameroon. *Progress in Disaster Science*, *11*, 100190. Retrieved from https://www.sciencedirect.com/science/article/pii/S2590061721000508

Baxt, R. (1992). Thinking about the regulatory mix: Companies and securities and trade practices. In P. Grabosky & J. Braithwaite (Eds.), *The Future of Australian Business Regulation, Australian Institute of Criminology, Canberra*.

Bovens, M. (2018). Revisiting the study of policy failures. In *Fiascos in Public Policy and Foreign Policy* (pp. 23–36). Routledge.

C40 Cities Finance Facility (CFF). (2020). *Flooding in East Africa- The impacts on and implications for cities in East Africa, with a case study of Dar es Salaam, London.*

Carvalhaes, T.M., Chester, M.V., Reddy, A.T., & Allenby, B.R. (2021). An overview & synthesis of disaster resilience indices from a complexity perspective. *International Journal of Disaster Risk Reduction*, *57*, 102165. Retrieved from https://www.sciencedirect.com/science/article/abs/pii/S221242092100131X

Cavallo, A., & Ireland, V. (2014). Preparing for complex interdependent risks: A system of systems approach to building disaster resilience. *International Journal of Disaster Risk Reduction*, *9*, 181–193. Retrieved from https://www.sciencedirect.com/science/article/abs/pii/S2212420914000405

Chofreh, A.G., Goni, F.A., Klemeš, J.J., Malik, M.N., & Khan, H.H. (2020). Development of guidelines for the implementation of sustainable enterprise resource planning systems. *Journal of Cleaner Production*, *244*, 118655. Retrieved from https://www.sciencedirect.com/science/article/abs/pii/S0959652619335255

Contreras, D., Chamorro, A., & Wilkinson, S. (2020). The spatial dimension in the assessment of urban socio-economic vulnerability related to geohazards. *Natural Hazards and Earth System Sciences*, *20*(6), 1663–1687. Retrieved from https://nhess.copernicus.org/articles/20/1663/2020/nhess-20-1663-2020.html

Dalglish, S.L., Khalid, H., & McMahon, S.A. (2020). Document analysis in health policy research: The READ approach. *Health Policy and Planning*, *35*(10), 1424–1431. Retrieved from https://academic.oup.com/heapol/article/35/10/1424/5974853

Donahue, A., & Tuohy, R. (2006). Lessons we don't learn: A study of the lessons of disasters, why we repeat them, and how we can learn them. *Homeland Security Affairs*, *2*(2).

FEMA. (2023, December 5). *National Preparedness*. FEMA.gov. Retrieved from https://www.fema.gov/emergency-managers/national-preparedness

FEMA. (2024). *20 Years of the National Incident Management System*. US department of Homeland Security.

Gong, Z., & Forrest, J.Y.L. (2014). Special issue on meteorological disaster risk analysis and assessment: On basis of grey systems theory. *Natural Hazards*, *71*(2), 995–1000. Retrieved from https://link.springer.com/article/10.1007/s11069-013-0864-y

Gooding, K., Bertone, M.P., Loffreda, G., & Witter, S. (2022). How can we strengthen partnership and coordination for health system emergency preparedness and response? Findings from a synthesis of experience across countries facing shocks. *BMC Health Services Research*, *22*(1), 1441. https://link.springer.com/article/10.1186/s12913-022-08859-6

Gupta, A.K., & Gupta, N. (2021). Environment practices mediating the environmental compliance and firm performance: An institutional theory perspective from observing economies. *Global Journal of Flexible Systems Management*, *22*(3), 157–178. https://link.springer.com/article/10.1007/S40171-021-00266-W

Hambati, H., & Yengoh, G.T. (2018). Community resilience to natural disasters in the informal settlements in Mwanza City, Tanzania. *Journal of Environmental Planning and Management*, *61*(10), 1758–1788. Retrieved from https://www.tandfonline.com/doi/abs/10.1080/09640568.2017.1372274

Hamis, S., & Juma, H. (2019). Road Accidents in Tanzania Causes Impact and Solution. *GSJ*, *7*(5). Retrieved from https://www.ippmedia.com/sw/habari/mabomu-mbagala gmboto-yatikisa-jeshi.

Haulle, E. (2012). Evaluating earthquake disaster risk management in schools in Rungwe Volcanic Province in Tanzania. *Jàmbá: Journal of Disaster Risk Studies*, *4*(1), 1–7.

Herwig, A., & Simoncin, M. (2017). Underpinning the Role of Law in Disaster Resilience. An Introduction. In A. Herwig, & M. Simoncin (Eds.), *Law and the Management of Disasters: The Challenge of Resilience* (pp.1–20). New York: Routledge.

Howlett, M., Ramesh, M., & Wu, X. (2015). Understanding the persistence of policy failures: The role of politics, governance and uncertainty. *Public Policy and Administration*, *30*(3-4), 209–220.

Jin, L., Jiong, W., Yang, D., Huaping, W., & Wei, D. (2014). A simulation study for emergency/disaster management by applying complex networks theory. *Journal of Applied Research and Technology*, *12*(2), 223–229. Retrieved from https://www.scielo.org.mx/scielo.php?pid=S1665-42320140002000006&script=sci_arttext

Kalkman, J., & De Waard, E. (2017). Inter-Organizational Disaster Management Projects: Finding the Middle Way between Trust and Control. *International Journal of Project Management*, *35*, 889–899. https://doi.org/10.1016/j.ijproman.2016.09.013

Kapucu, N., Arslan, T., & Demiroz, F. (2010). Collaborative emergency management and national emergency management network. *Disaster Prevention and Management: An International Journal*, *19*(4), 452–468. Retrieved from https://www.emerald.com/detail/content/doi/10.1108/09653561011070376/full/html

Kauppi, K. (2022). Chapter 21: Institutional theory. In *Handbook of Theories for Purchasing, Supply Chain and Management Research*. Cheltenham, UK: Edward Elgar Publishing. https://doi.org/10.4337/9781839104503.00025

Kuknor, S.C., & Bhattacharya, S. (2022). Inclusive leadership: New age leadership to foster organizational inclusion. *European Journal of Training and Development*, *46*(9), 771–797. Retrieved from https://www.emerald.com/insight/content/doi/10.1108/EJTD-07-2019-0132/full/html

Majamba, H.I. (2022). An Examination of the Humanitarianism-Disaster Management Nexus in Tanzania's Policy and Legal Framework. *Huria: Journal of the Open University of Tanzania*, *29*(1).

Majid, A., Keong, L.C., & Arjunan, K. (1998). Company directors' perceptions of their responsibilities and duties: A Hong Kong survey. *Hong Kong Law Journal*, *28*, 60–89.

Medel, K., Kousar, R., & Masood, T. (2020). A collaboration–resilience framework for disaster management supply networks: A case study of the Philippines. *Journal of Humanitarian Logistics and Supply Chain Management*, *10*(4), 509–553. Retrieved from https://www.emerald.com/detail/content/doi/10.1108/JHLSCM-09-2019-0066/full/html

Miake-Lye, I.M., Delevan, D.M., Ganz, D.A., Mittman, B.S., & Finley, E.P. (2020). Unpacking organizational readiness for change: An updated systematic review and content analysis of assessments. *BMC health services research*, *20*, 1–13. Retrieved from https://link.springer.com/article/10.1186/s12913-020-4926-z

Mlingwa, E. (2024). The Legal and Institutional Challenges Facing Community-Based Disaster Management in Tanzania. *Tanzania Journal for Population studies and Development*, *31*(1), 83–103. Retrieved from https://tjpsd.udsm.ac.tz/index.php/tjpsd/article/view/254

Morgan, H. (2022). Conducting a qualitative document analysis. *The Qualitative Report*, *27*(1), 64–77.

Nji, T.M., Carolynne, A.K., & Vubo, E.Y. (2022). Natural Disaster Risk Management in Kenya: Prospects for Successful Implementation. In R.A. Balgah & J.N. Kimengsi (Eds.), *Disaster Management in Sub-Saharan Africa: Policies, Institutions and Processes* (pp.147–166). Bingley: Emerald Publishing Limited.

Nowell, B., Steelman, T., Velez, A.L.K., & Yang, Z. (2018). The structure of effective governance of disaster response networks: Insights from the field. *The American Review of Public Administration*, *48*(7), 699–715. Retrieved from https://journals.sagepub.com/doi/full/10.1177/0275074017724225

OECD. (1997). *Improving regulatory compliance: Strategies and practical applications*. The Australian National University, Paris.

Organisation for Economic Co-operation and Development. (2000). *Reducing The Risk of Policy Failure: Challenges for Regulatory Compliance.* OECD

Osinubi, I.S. (2020). The three pillars of institutional theory and IFRS implementation in Nigeria. *Journal of Accounting in Emerging Economies*, *10*(4), 575–599. https://doi.org/10.1108/JAEE-07-2019-0139

Parker, C. (1999a). Compliance professionalism and regulatory community: The Australian trade practices regime. *Journal of Law & Society*, *26*(2).

Quarshie, A.M., & Leuschner, R. (2020). Interorganizational interaction in disaster response networks: A government perspective. *Journal of Supply Chain Management*, *56*(3), 3–25. Retrieved from https://onlinelibrary.wiley.com/doi/full/10.1111/jscm.12225

Rawlinson, C., Carron, T., Cohidon, C., Arditi, C., Hong, Q.N., Pluye, P., & Gilles, I. (2021). An overview of reviews on interprofessional collaboration in primary care: barriers and facilitators. *International Journal of Integrated Care*, *21*(2). Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8231480/

Rodríguez-Espíndola, O., Albores, P., & Brewster, C. (2018). Disaster preparedness in humanitarian logistics: A collaborative approach for resource management in floods. *European Journal of Operational Research*, *264*(3), 978–993.

Ryan, B., Johnston, K.A., Taylor, M., & McAndrew, R. (2020). Community engagement for disaster preparedness: A systematic literature review. *International Journal of Disaster Risk Reduction*, *49*, 101655. Retrieved from https://www.sciencedirect.com/science/article/abs/pii/S2212420919317893

Salmona, M., & Kaczynski, D. (2024). Qualitative data analysis strategies. In *How to Conduct Qualitative Research in Finance* (pp. 80–96). Edward Elgar Publishing. Retrieved from https://www.elgaronline.com/edcollchap/book/9781803927008/chapter6.xml

Salukele, F., Mwageni, N., & Mushi, N.L. (2025). Disaster Risk Management and Emergency Response Legislations and Strategies Awareness in Tanzania: A Case of Dar Es Salaam City. *Journal of Sustainable Development*, *18*(1), 110–110.

Sawalha, I.H. (2020). A contemporary perspective on the disaster management cycle. *Foresight*, *22*(4), 469–482. Retrieved from https://www.emerald.com/detail/content/doi/10.1108/fs 11-2019-0097/full/html

Selbst, A.D. (2021). An institutional view of algorithmic impact assessments. *Harv. JL & Tech.*, *35*, 117. Retrieved from https://heinonline.org/HOL/LandingPage?handle=hein.journals/hjlt35&div=6&id=&page

Shroff, A. (2021). *A system thinking approach to risk reduction and mitigation for improving disaster management.* Doctoral dissertation, Harvard University. Retrieved from https://www.proquest.com/openview/4a3c6fc04c8c81ba36e0d683654ea96f/1?pq origsite=gscholar&cbl=18750&diss=y

Singh, V., Gu, N., & Wang, X. (2011). A theoretical framework of a BIM-based multi-disciplinary collaboration platform. *Automation in Construction*, *20*(2), 134–144. Retrieved from https://www.sciencedirect.com/science/article/abs/pii/S0926580510001408

Sohn, H.G., Kim, Y.K., & Kwon, Y. (2023). Studying Disasters Through Complexity Theory. In *International Handbook of Disaster Research* (pp. 1077–1088). Singapore: Springer Nature Singapore. Retrieved from https://link.springer.com/referenceworkentry/10.1007/978-981-19-8388-7_150

Son, C., Sasangohar, F., Neville, T., Peres, S.C., & Moon, J. (2020). Investigating resilience in emergency management: An integrative review of literature. *Applied Ergonomics*, *87*, 103114. Retrieved from https://www.sciencedirect.com/science/article/abs/pii/S0003687020300752

Twum-Darko, M., Ncede, N., & Tengeh, R. (2023). Stakeholder engagement: A service delivery-based strategy formulation process in the public sector of South Africa. *International Journal of Research in Business and Social Science (2147-4478)*, *12*(3), 109–121.

Uddin, M.S., Haque, C.E., & Khan, M.N. (2021). Good governance and local level policy implementation for disaster-risk-reduction: Actual, perceptual and contested perspectives in coastal communities in Bangladesh. *Disaster Prevention and Management: An International Journal*, *30*(2), 94–111. Retrieved from https://www.emerald.com/insight/content/doi/10.1108/DPM-03-2020-0069/full/html URT, 2022; Disaster Management Act

Vargas, I., Eguiguren, P., Mogollon-Perez, A.S., Bertolotto, F., Samico, I., López, J., . . . Vázquez, M.L. (2020). Understanding the factors influencing the implementation of participatory interventions to improve care coordination. An analytical framework based on an evaluation in Latin America. *Health Policy and Planning*, *35*(8), 962–972. Retrieved from https://academic.oup.com/heapol/article/35/8/962/5879869

Wang, Y., Cai, J., Zuo, J., Bartsch, K., & Huang, M. (2021). Conflict or consensus? Stakeholders' willingness to participate in China's Sponge City program. *Science of the Total Environment*, *769*, 145250. https://www.sciencedirect.com/science/article/abs/pii/S0048969721003168

Williams, Z., Lueg, J.E., Taylor, R.D., & Cook, R.L. (2009). Why all the changes? An institutional theory approach to exploring the drivers of supply chain security (SCS). *International Journal of Physical Distribution & Logistics Management*, *39*(7), 595–618. Retrieved from https://www.emerald.com/detail/content/doi/10.1108/09600030910996279/full/html

World Bank. (2019). *Tanzania Urban Resilience Program Annual Report*. Retrieved from https://documents.worldbank.org/en/publication/documents - reports/ document detail/ 132061570739508217

World Health Organization. (2017). *Emergency response framework (ERF).* World life expectancy, 2022; World expectancy report.

Yousefian, S., Sohrabizadeh, S., & Jahangiri, K. (2021). Identifying the components affecting intra-organizational collaboration of health sector in disasters: Providing a conceptual framework using a systematic review. *International Journal of Disaster Risk Reduction*, *57*, 102146. Retrieved from https://www.sciencedirect.com/science/article/abs/pii/S2212420921001126

Zhang, K., & Lee, J.E. (2024). Assessing the Operational Capability of Disaster and Emergency Management Resources: Using Analytic Hierarchy Process. *Sustainability*, *16*(10), 3933.