

**INTER-GOVERNMENTAL ORGANIZATIONS AND NATIONAL DISASTER  
MANAGEMENT OPERATIONS: A CASE OF UNITED NATIONS DISASTER RISK  
REDUCTION (UNDRR) AFRICA REGIONAL PLATFORM IN FLOOD  
MANAGEMENT IN KENYA**

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## DECLARATION AND APPROVAL

This project is my original work and has not been presented for a degree in any other University or for any other award.

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### Approval by supervisor

I confirm that the work presented in this proposal is carried out by the candidate under my supervision.

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## DEDICATION

I dedicate this work to my auntie Domitila Ndonge who challenged me to do my master's degree and family for encouragement to complete this project.



## ACKNOWLEDGEMENTS

I am indebted first to my God for giving me the strength, resources and courage to undertake this research. Secondly, special gratitude to my supervisor Prof Kennedy Mutundu for his tireless efforts and guidance through the development of this research project. I extend my gratitude to my friend Mr. Paul Babu who constantly encouraged and challenged me to complete the project.

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## ABSTRACT

The Sendai Framework for Disaster Risk Reduction (SF-DRR), the 2030 Agenda for Sustainable Development (ASD-2030), and the Paris Agreement (PA) were created as international frameworks to enhance global disaster risk management. Nevertheless, the extent to which these frameworks are truly impacting significant alterations in public policies and practices for disaster risk reduction remains uncertain. While these frameworks provide states with a comprehensive foundation for improving disaster risk management, there is a dearth of understanding regarding their actual impact, particularly in Sub-Saharan Africa (SSA). The purpose of this study was to analyze the influence of inter-governmental organizations on National Disaster Management operations: A case of UNDRR Africa regional platform in flood risk management in Kenya. The objectives of the study are to analyze the influence of; UNDRR capacity building, resource mobilization, innovation & technology Transfer and policy development support on National Disaster Operation Center in flood risk management in Kenya. The study is grounded in World Society Theory. The study used a descriptive study design to present variables as they are. The study collected data using questionnaires. Quantitative data will be analyzed using descriptive statistics. This study provides information on how national disaster management operations can be improved by UNDRR support for capacity building, resource mobilization, innovation, technology transfer, and policy development. The development and application of more sensible policies and plans for disaster management can be influenced by this evidence. Policymakers can allocate resources for disaster management in an informed manner by comprehending the impact of UNDRR actions.



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## LIST OF ABBREVIATION AND ACRONYMS

A-in-A	Appropriation in Aid
ASD – 2030	Agenda for Sustainable Development
CBFM	Catchment-Based Flood Management
CBK	Central Bank of Kenya
CCA	Climate Change Adaptations
DRGF	Disaster Risk Governance Framework
DRR	Disaster Risk Reduction
DRRM	Disaster Risk Reduction and Management
FAP	Flood Action Plan
FPs	Flood Partnerships
FRMP	Flood Risk Management Plans
GiFM	GIS-based integrated flood management
ICS	Incident Command Systems
ICS	Incident Command Systems
IFM	Integrated Flood Management
IGOs	Intergovernmental organizations
LAAs	Learning and Action Alliances
MBIs	Market-Based Instruments
NDOC	National Disaster Operation Center
NFM	Natural Flood Management
NGOs	Non-governmental Organizations
PA	Paris Agreement
ROs	Response Organizations
SF-DRR	Sendai Framework for Disaster Risk Reduction
UN	United Nations
UNDRR	United Nations Office for Disaster Risk Reduction
UNDRR-ARP	United Nations Office for Disaster Risk Reduction Africa Regional Platform

## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background to the Study

Over the past three decades, floods have become more frequent worldwide (Wingfield *et al.*, 2019). Floods are one example of the many natural, man-made, or environmental dangers for which risk management has been characterized as a methodical process (Plate, 2002). According to Mohapatra & Singh (2003) the main causes of floods in India include silting of riverbeds, erosion of riverbanks, and insufficient ability of riverbanks to contain heavy floods. Other contributing factors include landslides that alter the course of the river and obstruct flow, tidal and backwater effects that retard flow, inadequate natural drainage in areas susceptible to flooding, hurricanes and their heavy precipitation, snowmelt and glacial outbursts, and dam break-up (Sen, 2010; Nandy, 2005).

Risk management is a topic that has been extensively discussed and has various interpretations. In practice, risk management takes place at three distinct levels: operational, which involves managing risks in an existing system; project planning, which is used to plan new projects or make revisions to existing ones; and project design, which is an integral part of the second level and involves determining the most optimal solution for the project (Plate, 2002).

Raungratanaamporn *et al.* (2014) argue that due to the limitations of a single authority in disaster management, the importance of teamwork has been emphasized as a crucial aspect of professionalism in this field. Consequently, several disaster management concepts, such as professional management, command, control, cooperation, and incident command systems (ICS), are becoming more and more disputed. The close relationship between local government and communities is a consequence of the government's responsibility as the initial responder in disaster management, which also impacts the effectiveness of disaster response (Wolensky & Wolensky, 1990). Nevertheless, challenges to collaboration inevitably emerge, including divergent perspectives, varying levels of commitment, political determination, and differing expectations, all of which undermine efforts to effectively control catastrophic events through cooperation.

According to Palttala *et al.*, (2012) it is the duty of public authorities to safeguard citizens' safety and advance the public interest by skillfully handling emergencies. In this context, "response

organizations (ROs)" refers to government agencies and rescue groups that are mandated by law to anticipate and handle emergencies. When it comes to managing disasters within their own purview, these institutions take care of things. But today's situations are more complex than ever, necessitating the simultaneous participation of numerous groups. The number of people involved in managing a crisis at the national, regional, and local levels will increase proportionately with the severity and scope of the crisis and its negative effects. Public and non-governmental groups must collaborate internationally in order to address global threats and crises (Malalgoda, Amaratunga, & Pathirage, 2010). NGOs are currently actively engaged in humanitarian relief efforts and large-scale natural disasters throughout the world (Mondal, Chowdhury, & Basu, 2015). When these elements are considered, it is clear that collaboration within a network of response organizations is difficult. This is true for both operational and communication tasks.

Intergovernmental organizations (IGOs) are entities created by states to facilitate international collaboration, dialogue, conflict resolution, and the exchange of information. Sarmiento (2017) provides the following definition of IGOs. The United Nations (UN) is a prominent global intergovernmental organization. The UN system has been promoting the problem of climate change adaptation (CCA) through several methods. UN organizations have enhanced their integrity and accountability by adopting a standardized set of metrics to monitor progress as they accelerate and incorporate disaster risk reduction into their activities. Raikes et al. (2022) assert that the global frameworks established in 2015, namely the Paris Agreement (PA), the 2030 Agenda for Sustainable Development (ASD - 2030), and the Sendai Framework for Disaster Risk Reduction (SF-DRR), offer a comprehensive foundation for countries to improve their management of disaster risks. The extent to which these frameworks are impacting the necessary modifications to governmental procedures and policies for reducing catastrophic risk remains uncertain.

The collaborative disaster risk governance framework (DRGF) offers the potential for a more cooperative approach involving governments, the business sector, academia, civil society, and at-risk communities, as suggested by Lassa (2018). Under the current framework of modern disaster risk reduction systems, the primary institutions, including the public and private sectors, as well as non-governmental organizations, have been gradually modifying their environment to adopt more proactive strategies for responding to disasters. These techniques are supported by a team of skilled personnel and technical specialists, as well as social and humanitarian principles that seek to reduce the probability of disasters (Albris, Lauta, & Raju,

2020). In the past, non-governmental organizations have utilized moral imperative models to demonstrate their significance and credibility in tackling various problems and deficiencies at both local and global levels. NGOs play a crucial role in the global ecosystem for disaster risk reduction (DRR) by exerting influence on the DRR agenda and humanitarian emergency response at various levels where they are recognized and valued (Lassa, 2018).

In order to fully realize the promise of the current DRRM strategy, its proclaimed principles must be appropriately translated sectorally and institutionally, reflecting improved institutional structures as well as support from resources and policy (Domingo, S. N. (2017). Important choices must be made in order to strengthen institutional frameworks and provide the right environment for DRRM, especially regarding jurisdiction, mission, and response capability. Enhancing the platform's functionality would be beneficial in addressing concerns related to institutional capacity and leadership, disaster response expediency, stakeholder participation, and community protection and preparedness. Internalized, ingrained, and rigorously applied, DRRM principles must be followed by organizations both inside and outside of the bureaucracy (McLean et al., 2013; Waylen et al., 2018).

The use of natural flood management (NFM) as a sustainable substitute for conventional flood control has been promoted (Wingfield et al., 2019; Lashford et al., 2022). The foundation of NFM is the well-established theory that, through catchment-based flood management, or CBFM, river flow can be managed at the catchment scale to lessen downstream flood inundation, as opposed to locally protecting floodplains from flooding. NFM is a subset of CBFM since it emphasizes more "natural" methods of achieving this, even though the corresponding actions might not be entirely natural (Collentine & Futter, 2018; Lane, 2017).

The Sendai Framework for Disaster Risk Reduction promotes financial support for technology advancement and innovation in disaster risk reduction (Izumi et al., 2019). DRR technology sharing has become a significant international problem that transcends national borders. Because of the challenges with sharing, investment, and commitment, the DRR technology-sharing environment has to be strengthened. Asia-Pacific countries must share DRR technology via a web-based platform in order to provide everyone with the tools they need to prevent disasters from getting worse, to break down barriers to technology sharing, to resolve problems with language-related transfers, and to support insufficient DRR budgets. The architectural and governance-type platform turned out to be the most successful and efficient of the four web-based platform kinds (Kim et al., 2016).

According to Mojtahedi, & Oo, (2017) understanding stakeholders' strategies against disasters in the built environment is crucial for disaster risk reduction (DRR). The key elements influencing stakeholders' approaches to disasters are their organizational characteristics (power, legitimacy, and urgency) and their decision-making frameworks (value maximization and intuitive reasoning). A resilient society and built environment are necessary for catastrophes, and this requires proactive stakeholder participation in the early stages of disaster risk management (Mohammad & Lan Oo, 2014).

According to Maskrey et al., (2020) Learning and Action Alliances (LAAs) are gaining traction as a way to get around the problems with participatory forms of government, where stakeholders must work together to make decisions. LAAs give institutional players in flood risk management a way to collaborate, exchange knowledge, be creative, and solve "wicked" problems. We come to the conclusion that individuals who design participatory processes, such as LAAs, ought to focus on many aspects of capacity building and take into account the ones that are most appropriate for their unique goals and circumstances.

External partners face challenges in promoting the development of sustainable capacities for disaster risk reduction in disaster-prone nations, even though capacity building has been recognized as a strategy to substantially reduce global disaster losses. The terminology used is ambiguous, with varying opinions on the definition of a local context, ownership, and capacity evaluation. Additionally, there are contradictory perspectives on the responsibilities and duties of external partners. There is a tendency to focus individual training over other criteria, often neglecting them. Additionally, there is a widespread lack of information regarding project monitoring and analysis, as well as which outcomes to assess (Hagelsteen & Becker, 2013).

## **1.2 Statement of the Problem**

The Sendai Framework for Disaster Risk Reduction (SF-DRR), the 2030 Agenda for Sustainable Development (ASD-2030), and the Paris Agreement (PA) were established as global frameworks to improve disaster risk management globally. However, it is still unclear how much of these frameworks are actually influencing crucial changes in public policies and practices for disaster risk reduction. Although these frameworks offer states a thorough basis for enhancing disaster risk management, there is a lack of knowledge regarding their true effects, especially in Sub-Saharan Africa (SSA). It is vital to evaluate the impact of global initiatives, like those run by the United Nations Office for Disaster Risk Reduction (UNDRR) Africa Regional Platform, on national disaster management operations in Sub-Saharan Africa,

a region highly vulnerable to natural disasters like floods. Although there are UNDRR interventions in place to support policy development, innovation and technology transfer, resource mobilization, capacity building, and policy development, there is a dearth of empirical data to support their efficacy in enhancing national flood management practices, especially in nations such as Kenya.

Additionally, whereas research like that conducted by Raikes et al. (2022) has emphasized the significance of these global frameworks, it has also revealed a knowledge vacuum on the real-world application and effects of these frameworks. In particular, not much study has been done on how the SF-DRR, ASD-2030, and PA are influencing flood management practices and policies in SSA nations like Kenya. Therefore, the issue this study attempts to solve is the paucity of thorough empirical data regarding the impact of global programs, especially those spearheaded by the UNDRR, on national disaster management operations, with a particular focus on flood management in Kenya. By bridging this gap, the study hopes to advance knowledge of how well global frameworks influence policies and practices related to disaster risk reduction in SSA nations, ultimately guiding more focused and effective interventions to improve flood risk management and resilience in the area.

### **1.3 Purpose of the Study**

The purpose of the study was to analyze the influence of inter-governmental organizations on National Disaster Management operations: a case of UNDRR Africa regional platform in flood risk management in Kenya.

### **1.4 Objectives of the Study**

The objectives of the study were;

- i. To investigate the influence of UNDRR capacity building on National Disaster Operation Center in flood risk management in Kenya.
- ii. To analyze the influence of UNDRR resource mobilization on National Disaster Operation Center in flood risk management in Kenya.
- iii. To assess the influence of UNDRR innovation & technology Transfer on National Disaster Operation Center in flood risk management in Kenya.
- iv. To analyze the influence of UNDRR policy development support on National Disaster Operation Center in flood risk management in Kenya.

### **1.5 Research Questions**

The research questions for this study were;

- i. How does UNDRR capacity building influence National Disaster Operation Centers' flood risk management in Kenya?
- ii. What is the influence of UNDRR resource mobilization on National Disaster Operation Center flood risk management in Kenya?
- iii. What is the influence of UNDRR innovation & technology on National Disaster Operation Center flood risk management in Kenya?
- iv. How does UNDRR policy development support influence National Disaster Operation Center flood risk management in Kenya?

### **1.6 Significance of the Study**

The study provides empirical evidence of global collaboration in disaster management, mainly on flood risk management. It, therefore, highlights how way's support given by UNDRR in capacity building, resource mobilization, innovation, technology transfer, and policy development can enhance national operations in disaster management. It may also influence the development and application of more sensible policies and plans related to disaster management. This makes it possible to efficiently allocate disaster management resources through wise policymaking that, because it pertains to the full effects of UNDRR actions about them, identifies the most critical regions from which international assistance is apt to emanate and can specifically direct strategic planning to enhance resilience and disaster response to the most frequent events such as flooding. The research findings on the influence of technology transfer and capacity building by the UNDRR give the substance that can be applied to enhance operational effectiveness at the National Disaster Operation Center and other similar organizations. It makes adopting best practices and development opportunities of state-of-the-art technologies and practices in this field much more accessible.

This research will improve cooperation between the NDOC and UNDRR, among other international and regional institutions, on disaster management to develop a more coherent, practical framework of international cooperation that could lead to better and effective ways of mitigating disaster risk. This research will enhance the effectiveness of flood risk management operations and indirectly benefit communities at risk of floods. This damage can endanger the communities with many negative impacts; however, better planning, response, and recovery activities will increase the resilience of these communities to future disasters. Essential to be underscored by the study is the point of including the views from the communities. This would

not only ascertain that the solutions indeed meet the real needs of those most affected by the disaster but would go further in promoting more people-centered approaches. This will also enhance the available body of knowledge about catastrophe risk reduction and management, especially in the area of cooperation and support between nations. The current research, therefore, fills this gap because it will be a case study that can be compared to what the attitudes of activities of UNDRR have on the African countries. Future research a base on this study includes the highlighted areas of improvement and points out where the UNDRR initiatives have been most successful. It could encourage further studies in strategies for reducing catastrophe risks and how policies are put into action, furthering research into the role of innovation and technology.

### **1.7 Scope of the Study**

The study focused on inter-governmental organizations and National Disaster Management operations. The study was a case study of the UNDRR Africa Regional Platform (UNDRR-ARP) activities in supporting the Kenyan National Disaster Operation Center in Flood Risk Management (FRM) in the following areas; capacity building, resource mobilization, innovation & technology transfer and policy development support. The study was conducted in Nairobi where the offices of UNDRR Africa Regional Platform and the NDOC are domiciled. The study targeted both managers and officers in the key divisions and/or departments of operations, resource mobilization, implementations and policy development. The study used descriptive study design and collected data using questionnaires and key informant interviews. The study was carried out based on operations from 2015 after the adoption of the Sendai Framework for Disaster Risk Reduction (DRR).

### **1.8 Limitations and Delimitations of the Study**

This section outlines the boundaries and challenges that shaped the scope, methodology, and findings of the study. Limitations refer to constraints encountered during the research process. Especially those beyond the researcher's control, which may affect the depth of findings. Delimitations are the specific choices made by the researcher to narrow the study's focus for clarity, and manageability.

#### **1.8.1 Limitations of the Study**

The acceptance and level of implementation of the Sendai Framework for Disaster Risk Reduction by the National Disaster Operation Center also bears much weight in the outcome.

The Sendai Framework demonstrates an agreement by all governments worldwide to minimize the risks of disasters and losses in terms of lives, livelihoods, and health. The extent to which the research determined the impact of the UNDRR relies on how closely NDOC followed and implemented the criteria at this moment in this framework. Sensitive data was involved in parts of the management of disasters, including details of risks, vulnerabilities, and the state's capacity for response and preparation. Political sensitivities or security considerations could bar information access. The research, therefore, depended on information and published work that was within the public domain and often fails to provide a lucid view of the output of the UNDRR or the NDOC's performance. Public perception of the NDOC, particularly in its responsiveness to emergencies, influences whether stakeholders share vital information or whether the information they share is considered reliable.

Positive perceptions of the NDOC may make stakeholders be influenced to emphasize positive accomplishments and reduce other failures. A pessimistic view may twist the data to the much complained as the negative side is hell-bent on, and hence the positive parts are ignored. Although these are limitations of this research that needed consideration, they were at least partly overcome by suitable methodology that included triangulation of data sources, the use of qualitative interviews with a range of stakeholders and ensuring that the research design allowed for the analysis of differences between public opinion and operational realities.

### **1.8.2 Delimitations of the Study**

Delimitations detailed specifics of where the researcher had purposely placed boundaries on the study. The study was spatially delimited to Nairobi, Kenya, where the NDOC and the UNDRR Africa Regional Platform headquarters are located. It did not, however, delimit analysis related to how UNDRR-ARP impacts flood risk management efforts in other parts of the country or in other African nations in which UNDRR-ARP might be of importance. The research itself focused on the activities in place that were implemented after the adoption of the Sendai Framework for Disaster Risk Reduction, specifically from 2015 to date. This excludes any projects, impacts, or other adjustments on modes of flood control that were in use before 2015. This research focused on support given in policy development, innovation and technology transfer, resource mobilization, and capacity building. This precluded investigating other potential areas of influence or support, such as public awareness campaigns, direct disaster relief efforts, or specific construction projects. The report focused first on the work of the UNDRR Africa Regional Platform regarding the Kenyan NDOC. It neither covered all the work

done by UNDRR worldwide nor the work of other intergovernmental bodies dedicated to disaster risk reduction in Kenya.

### **1.9 Assumptions of the Study**

The following were the assumptions of the study;

- i. The interventions and initiatives of the UNDRR Africa Regional Platform in support of policy development, innovation and technology transfer, resource mobilization, and capacity building are all naturally beneficial. They could positively impact the National Disaster Operations Centre efforts in flood risk management in Kenya.
- ii. During the research period, the political, social, and economic situation of Kenya was stable enough such that it did not unduly influence the results of the operations of the UNDRR, especially about disaster management and international cooperation.
- iii. Key people and bodies in the National Disaster Operation Center who are available and ready to help with the study by offering valid and complete information about the effectiveness of the UNDRR-ARP operations.
- iv. The National Disaster Operation Center and UNDRR Africa Regional Platform consistently apply and report on metrics and indicators that have been used to assess the impact of the UNDRR action in flood control in Kenya.

## 1.10 Operational Definition of Key Terms

Capacity Building	Refers to the process of enhancing and fortifying the competencies, intuitions, capacities, procedures, and assets that businesses and communities require to endure, adjust, and flourish in a rapidly evolving world.
Disaster Risk Reduction (DRR)	refers to the methodical process of determining, evaluating, and mitigating the risks associated with disasters. It seeks to reduce the harm that natural disasters like floods, earthquakes, and droughts inflict by implementing mitigation, preparedness, and preventive strategies.
Disaster	an abrupt, catastrophic occurrence that greatly impairs the ability of a community or civilization to operate and results in extensive losses of people, property, money, or the environment that are greater than what the impacted community or society could reasonably recover from on its own. Natural disasters (hurricanes, floods, earthquakes) and man-made catastrophes (terrorism, industrial accidents) can both cause disasters. A disaster will be measured for the purposes of this study using particular indicators, such as the quantity of persons killed, injured, or displaced, the amount of money lost, and the degree of environmental damage.
Flood Risk Management	includes all of the tactics, initiatives, and actions used to stop, lessen, and deal with the effects of floods. This covers assessing the danger of flooding, putting in place structural and non-structural flood prevention measures, responding quickly in the case of a flood, and working to recover and rehabilitate areas after flooding.
Floods	Inundation refers to the excessive accumulation of water on territory that is typically arid. Floods can arise due to the inundation of water from water bodies, such as rivers

or lakes, or from an atypical buildup of water caused by intense rainfall or the melting of snow that surpasses the ground's ability to absorb it.

**Innovation & Technology Transfer** involves the introduction and adoption of new technologies, methods, or processes that improve efficiency and outcomes. In this study these will be, such as early warning systems, GIS mapping, and modeling software, and the extent to which these technologies have been integrated into the NDOC's operations and improved flood risk management effectiveness.

**Policy Development Support** refers to the assistance provided in formulating, revising, and implementing policies related to a specific area of concern, in this case, flood risk management. This support can include expert advice, research, stakeholder consultation, and drafting policy documents.

**Resource Mobilization** the process of gathering all possible resources, including financial, human, and material, to support the achievement of specific goals.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 Introduction

This section presents the literature review of each objective from published materials and reports highlighting gaps in research in disaster risk reduction and flood management. The section of pins the work in theoretical framework using the world society theory and conceptualizes the variables of the study with their indicators showing their relationship.

#### 2.2 Empirical Literature

This section provides an overview of relevant extant research, theories, and findings on the influence of intergovernmental organizations on national disaster management operations. Indeed, this review furnished the background or context necessary to understand how international strategies and interventions can be integrated into national frameworks toward effectively managing and mitigating flood risk. The review investigates capacity building, resource mobilization, innovation and technology transfer, and policy development in the management of flood risk. Secondly, their effectiveness is investigated in enhancing operational capability in national disaster operation centers.

##### 2.2.1 Overview International Governmental Organizations and Disaster Risk Management

Hollis (2014) defines the topic of Disaster Risk Management (DRM) policy as focused on mitigating the impacts of natural hazards and assisting countries in their response to disasters. In the last decade, the significance of natural disasters as a security risk has increased. The current patterns of disasters are causing a rise in human susceptibility on a global scale. Flood risk, as defined by Begg et al. (2011), is the outcome of the combination of the probability of a flood happening and the potential adverse impacts that a flood event could have on the environment, cultural heritage, human health, and economic activity. Despite being split into 193 sovereign nations plus roughly 60 overseeing territories or dependents in the Northern and Southern Hemispheres, the Earth is still one planet in terms of structure. Oceans are also interrelated, meaning that changes made on one side of an ocean may have an impact on the other. The worrisome rise in the frequency and severity of disasters worldwide has been primarily linked to climate change. Dilley (2006) contend that people, infrastructure, and economic activities are all vulnerable to natural hazards, which results in natural catastrophes.

These elements' analysis has made it possible to identify the nations and regions within them that are most likely to experience future disaster-related deaths and economic losses. Like other continents, Africa has seen its fair share of catastrophes, however not to the same extent as Asian nations. Despite the lesser size of African disasters, their impacts on the populace are nevertheless catastrophic because of the region's high level of susceptibility (Vadivel & Rav, 2010; Berg & De Majo, 2017; Rivera, Ceesay & Sillah, 2020).

According to Raungratanaamporn et al (2014) the tight linkages between local government and communities are a result of government's role as first responder in disaster management, and these relationships have an impact on how well disaster response is carried out. However, obstacles to cooperation always arise, such as disparate viewpoints, levels of willingness, political will, and expectations, which undercut any attempts at cooperative catastrophe management. According to Vadivel & Rav, (2010) since DRM involves a wide range of stakeholders and specialists from many disciplines, participation from every country is necessary. Risk will be controlled only when there is a global policy and every country recognizes the need for such a global policy in the global environment. However, Berg & De Majo (2017) argue that instead of tackling the social processes that make individuals vulnerable to those hazards, the UN policy focuses primarily on controlling risks and changing or adapting societies to hazards. The need to alter the social structures that increase the danger of disaster is overshadowed by the predominance of concerns about managerial and technological remedies. Nonetheless, the UN strategy's understanding of disasters is consistent with a new holistic worldview. Nevertheless, rather than being radical, the holism it expresses is constrained (Berg & De Majo, 2017).

Jensen et al (2015) have observed significant advancements in DRM, which reflect broader transformations in local and global governance. There are two significant global developments that are worth noting. Firstly, the global governance system has transitioned from having one dominant structure to a diverse range of organizations that can collaborate for specific objectives. Secondly, a globalized Digital Rights Management (DRM) system has emerged, with improvements in institutional, organizational, and technological capabilities, enabling DRM to operate almost instantaneously worldwide. Local governance has improved its capacity to address complex challenges arising from rapid urbanization and provide creative solutions. The significance of the global-local interface working in harmony has been highlighted by recent natural disasters such as the 2011 Tohoku Earthquake and Tsunami (Alexander, 2006; Hollis, 2014). At the national level, there is a growing need for a strategic

role that focuses on enhancing the linkages between global and local levels, considering both global and local trends in a comprehensive manner. The local level can significantly enhance its capacity through the implementation of a multinational DRM system, without the need for a substantial financial investment that would have been required to develop these capabilities separately. Disseminating DRM (Digital Rights Management) in higher education across the nation is crucial for achieving this goal, facilitated by an enhanced information dissemination system.

For Alexander (2006) disaster preparedness and response, like those of the 2011 Japanese earthquake and the 2004 Southeast Asian tsunami, are manifestations of a new security agenda that has permeated most regional organizations and swept the globe. Initially, it seems that state functional choices are driving the development of regional disaster risk management (DRM) programs. Comparing ten regional groups, however, exposes some intriguing ambiguities. Most states have established DRM programs with highly standardized language, referent points of protection, and apparent motivations for cooperation, despite disparities in threat assessments, financial resources, and geographic locations of regional organizations (Hollis, 2014).

Shaw & Izumi (2014) argue that the presence of civil society plays a vital role in mitigating the risk of catastrophe. I have actively participated in matters concerning Southeast and Asian regions. The underlying pattern, however, is that civil society initially engages in post-disaster assistance and rescue operations before shifting its attention towards short-, medium-, and long-term recovery efforts. Some companies took use of the opportunities to engage in strategic planning and risk reduction (pre-disaster preparedness). The aftermath of a disaster has significantly changed the dynamics of civil society movements in various nations. This has made it easier for them to address the needs of the local population, even though their involvement in independent risk mitigation efforts has only been sporadically successful.

The Indian Ocean Tsunami of 2004 and the hurricane Nargis of 2008 stand out among the numerous disasters that have recently struck the Asian region. The former because of its more extensive effects, spanning many Indian Ocean nations, where the private sector's and regional organizations' roles need to be reevaluated in order to have multi-stakeholder cooperation across multiple regions. Because of ASEAN's proactive participation in fostering regional collaboration and enlisting the business sector to aid in disaster relief and response, Cyclone Nargis stands out (Hollis, 2014; Shaw & Izumi, 2014).

## **2.2.2 IGO Capacity Building and Flood Risk Management**

Evers, Geißler & Arthur (2015) acknowledge that in terms of flood management, capacity refers to the ability of people, communities, organizations, authorities, and local societies overall to coexist and adapt in a sustainable manner to a regionally unique exposure to water and flood risk. The activities, plans, and techniques that enable societies and the people within them to acquire this skill are thus essential to capacity building. Capacity development for DRR has been recognized as a primary approach to significantly decrease the impact of disasters. Institutional capacity development entails using a more organized approach to working on capacity development and carrying out capacity assessments. The organization may have difficulties in effectively transforming its capacity development guidelines into a tangible and applicable instrument (Hagelsteen, & Burke, 2016; Iizuka, 2020).

According to Wubneh (2003) building capacity and the availability of material and human resources in the area are statistically significantly correlated. Yet, the scant number of studies and the shaky correlation between capacity building and some resource variables—like donor financing and foreign personnel—appears to indicate that more research with a larger sample size is necessary to fully understand these linkages. Planning capacity building initiatives in Africa, should consider the gestation period, program element integration, and institutional setting (Lamoree & Harlin, 2002).

Ashley et al., (2012) contend that with money becoming less available and flood risks rising, professionals must adapt their procedures. "Active learning" can support the growth of the ability to use alternative innovative solutions and to embrace other viewpoints on risk and performance. It takes a shift in organizational and individual cultures to escape the trap of traditional methods. According to Buchecker, Menzel, & Home (2013) recent research, dialogic approaches to risk communication are more successful in enhancing stakeholders' social capacities connected to hazards. The primary benefits of participatory flood control lie in fostering social learning and mitigating the erosion of trust, rather than only promoting acceptance. Stakeholder involvement should be carefully designed as a means to facilitate long-term social learning. With the occurrence of recent intense flooding and the anticipated shifts in climate, the significance of developing novel approaches to handle flood disasters is increasing. The approaches mentioned are classified as integrated flood management (IFM) and focus on both flood resistance and prevention. Owotoki et al. (2006) introduces FLORETO, a web-based application for IFM that utilizes a three-tier structure. FLORETO aims to enhance stakeholder capacity as a micro-scale resilience approach by employing the data mining technique.

Działek, Biernacki, & Bokwa (2013) investigated the attitudes, behaviors, and expectations of at-risk communities in four specific sites in southern Poland that were affected by flooding in 1997 and 2001. They represented different sizes of local areas and were characterized by different historical patterns of development. Two of these neighborhoods have firmly established communities with strong familial and local connections, whereas the other two neighborhoods continue to have challenges in developing social networks due to the significant population turnover resulting from decisions taken during World War II. Historical events also disrupted the local recollection of floods and the spread of knowledge about environmental hazards (Pagneux, Gísladóttir & Jónsdóttir, 2011). When examining and making sense of the data, the capacity of networks, which refers to the resources that connect and bridge social capital, were considered to be essential notions. The varying resources and capacity of each area to prepare for natural disasters became evident. The study documented the challenges faced in improving and cultivating social skills, as well as the corresponding remedies. The study found that risk management procedures should consider general trends and tendencies, but the unique starting positions of each community in the case studies require different methods and strategies, as well as varied expected results (Jha, Bloch & Lamond, 2012).

Dudley et al. (2013) found that the devolution of authority in flood risk management has led to an increased involvement of many stakeholders in the UK and other countries. This devolution has resulted in a wider range of stakeholders participating in flood risk management, both at lower levels of authority and in other areas. Therefore, it is imperative for systems such as Learning and Action Alliances (LAAs) to provide platforms that facilitate social learning, promote it, and strategically focus on improving stakeholders' abilities to effectively handle the risk of flooding. The objective of LAAs is to develop and enhance capacities at three distinct levels: the individual engaged in the LAA, the organizations they belong to and engage with, and the broader environments they are involved in (Maskrey et al., 2020).

According to Sun et al. (2015), there are substantial pressures on water resources that will continue to grow in the future due to both climate-related and non-climate-related issues. Plummer et al. (2018) examines the shift from a conventional science-focused approach to water management to a comprehensive and flexible systems approach. The study centers on the notion of capacity, which is assessed through the livelihoods capitals method, encompassing physical, natural, financial, human, and social capitals. This trend is examined through the analysis of multiple case studies on urban flooding in Canada and Australia. The findings suggest that there have been changing perceptions of capacity in both cases over time (Sørensen

et al., 2016). Historically, the emphasis has been placed on the allocation of physical and financial resources, as they are closely associated with the conventional approach to water management. This method entails constructing large-scale control structures in response to major flood disasters. While the importance of these financial resources is still relevant, the emphasis on establishing capacity in line with the new water management method is increasingly centered on social and human resources. The ongoing disregard for natural resources should be explicitly considered in flood management. This study highlights the effectiveness of the capital strategy in meeting the urgent need (Sendzimir, Light, & Szymanowska, 1999; Plummer et al., 2018).

Since the establishment of a flood action plan (FAP) in 1988, the government of Bangladesh has taken the lead in implementing successful strategies to manage floods throughout the country (Dempster & Brammer, 1992). Bangladesh is actively striving to enhance its expertise and competence in nonstructural countermeasures and sustainable infrastructure. Another concern for local government and communities is the mitigation of flooding and the prevention of catastrophic damage. Therefore, it was imperative to introduce a government-led initiative to enhance the ability to manage flood risks in a sustainable manner, in order to support the leadership role of local authorities. A study introduced the GIS-based integrated flood management (GiFM) to improve flood risk management at different community levels throughout the country. The proposed GiFM conceptual framework seeks to enhance the capability of local government in a cost-effective way within the FAP (Kwak, Muraoka & Asai, 2018).

### **2.2.3 IGO Resource Mobilization and Flood Risk Management**

Flood risk management encompasses various components, including reducing the probability of a flood occurrence and minimizing potential damages. These factors are the responsibility of both the affected population and government organizations at the state and local level. To effectively contribute to Flood Risk Management Plans (FRMP), national and transnational flood partnerships (FPs) must exchange information with relevant players, following a bottom-up strategy. In order to accomplish this, it is necessary for them to utilize techniques such as system dynamics and group model building through a sequence of workshops. Raungratanaamporn et al. (2024) argue that due to the limitations of a single authority in handling disaster management, the importance of collaboration in disaster management activities has been recognized as a critical aspect of professionalism in this field. This results in

heightened discourse regarding various disaster management concepts, such as professional management, command, control, cooperation, and incident command systems (ICS).

Makhanu, (2018) Reconstructing projects in economically disadvantaged countries, like Kenya, after natural or man-made calamities is a demanding undertaking. Often, the available scarce resources are prioritized to guarantee the provision of essential necessities such as water, shelter, food, education, sanitation, and healthcare. Developing nations encounter substantial obstacles when attempting to carry out large-scale development and restoration initiatives without the support of benefactors (Nakagawa & Shaw, 2004). Conventional means of acquiring cash encompass borrowing, obtaining grants, receiving financial aid, and the activities of institutions that provide funds, such as the World Bank and its affiliated organizations in developing countries. An emerging indigenous strategy for raising funds involves the implementation of techniques such as merry-go-round, the "harambee" system, and community-based development programs in rebuilding projects (Ng'Ethe, 1983; Channell, 2000; Adede, 2007).

Local community service refers to the act of individuals from a certain organization volunteering their time and effort to perform tasks for the benefit of the local community, with the aim of minimizing or cutting down on labor expenses (Makhanu, 2018). The service is provided at no cost. Prior notification may be sent to the community being rescued, allowing them to select the specific area in need of assistance. In other scenarios, the specific group providing the services chooses a location that is in need of services and proceeds to work on it without informing anyone. The motivation for engaging in community services varies among different individuals and groups (Channell, 2000).

In the event of a disaster, the government officials in charge of the rehabilitation effort may explore alternative sources of funding. Several possibilities are available, such as obtaining loans from local or foreign sources, seeking technical assistance, and asking for grants from established institutions and other nations (Feeny & McGillivray, 2003; Nnadozie et al., 2017). Inadequate resource planning results in delays in reconstruction planning, intensifying suffering and causing additional harm. Timely provision of resources is crucial to guarantee the effective and efficient execution of a successful reconstruction program. Appropriation in Aid, also referred to as A-in-A, is a term used to describe certain types of revenue that the Treasury permits an accounting officer to use, in addition to the monies granted by the exchequer, to cover expenses (Tarnoff & Nowels, 2004). In Kenya, the role of the accounting officer is fulfilled by the permanent secretary of a ministry. Within an institutional context, such as a

university, the Finance Officer, in collaboration with the Chief Executive, assumes the role of the accounting officer. The Exchequer is the term used to describe the consolidated fund, which acts as the main reservoir from which the government obtains its financial resources, after receiving authorization from Parliament. The Central Bank of Kenya (CBK) possesses the aggregated funds. An Appropriation-in-Aid, often known as an A-in-A, is a component of the annual Appropriation Act. It serves as an official endorsement for the departmental supply estimates. Any excess money over the allowed Appropriation-in-Aid (A-in-A) will be surrendered to the exchequer as extra exchequer income (Njeru, 2003; Briggs, 2014).

Multilateral funding, sometimes known as aid, refers to international assistance that is managed by global organizations like the International Monetary Fund (IMF) and the World Bank (WB), which gather resources from a number of member nations and disperse them to recipient nations. A recipient nation of multilateral support may be required to adhere to specific rules and/or requirements, such as joining or becoming a member state of such international organizations in order to take advantage of their pooled resources (Lavelle, 2011; McArthur & Rasmussen, 2019).

A grant is a type of financial aid that is typically provided without the expectation of repayment. It is bestowed upon one organization by another to incentivize it to engage in or sustain activities that it would not (or could not) ordinarily pursue without such assistance. Grants are different from other types of financial assistance that individuals or organizations can get since the decision to help an organization with a grant is made without expecting any immediate financial benefit in return (Boulding & Pfaff, 1972). In recent years, there has been an increasing trend towards awarding grants that encourage cooperation between the public and private sectors, instead of giving public funds as an incentive for firms to undertake projects they might not otherwise explore (Jang & Feiock, 2007). The nonprofit sector, specifically, has had to consider how to obtain finances, requiring a more entrepreneurial approach. A grant-in-aid is a form of assistance that is not required to be reimbursed but is subject to specific predetermined conditions. Violation of the requirements necessitates repayment of the grant-in-aid. Highly developed nations often provide grants-in-aid to the least developed nations. Least developed countries receive financial or technical assistance, but with limitations to prevent the funds from being misused for non-priority areas or conflicting goals (Van Bilzen, 2015).

An uncomplicated method for providing technical assistance involves furnishing consumers with pertinent information and resources. This may entail the act of distributing resources to a

caller or directing them to a local trainer. In this method, either the user or the technical support provider can initiate the interactions with the goal of addressing specific user requirements. The inclusion of disaster education awareness within a complete school health/safety curriculum aligns nicely with the notion of technical support ((Makhanu, 2018).

The several definitions highlight the complex nature of Technical Assistance, which includes both the content - the knowledge or information being shared - and the approach - the way in which it is delivered. The various definitions of Technical aid also encompass the wide range of circumstances and goals for which technical help systems are designed. Optimal Technical Assistance is distinguished by its heightened level of intensity and involves sustained efforts over an extended period, with regularly scheduled meetings between the Technical Assistance provider and the user(s) or beneficiaries (McArthur & Rasmussen, 2019). It is necessary to prioritize and allocate greater attention and resources towards identifying, reducing, and transferring disaster risks in these vulnerable areas. To enhance risk management decision-making, there are efforts to more precisely determine the levels and components of catastrophe risk at both national and subnational levels in nations with high risk (Dilley, 2006).

#### **2.2.4 IGO Innovation & Technology Transfer and Flood Risk Management**

According to Eva (2014) technological transfer, which refers to the transmission of technical knowledge, is widely regarded as an efficient adaptation approach by numerous academicians and international organizations. Orimoloye, Belle & Ololade (2021) identify five technologies that can be very helpful in disaster risk reduction (DRR) practice: disaster-resistant materials, social networking platforms, remote sensing and geographic information systems, and insurance covering the risk of catastrophes. Although these technologies are regarded as very successful, their use is not always easy to use (Dalampira et al., 2022).

Van Popering-Verkerk & van Buuren (2017) state that pilots are commonly employed to explore the possibility of policy innovation outside of the established policy framework. In addition to acting as a boundary organization, pilots facilitate the development of reciprocity, mutual understanding, and trust among different stakeholders with differing perspectives. The Netherlands employs innovative initiatives to assess the feasibility of implementing more intensive flood management strategies based on risk assessment. Gradually replacing the traditional approach of building dikes and dams, multilevel flood safety is a risk-based strategy for preventing floods (Dieperink et al., 2018). The method to flood risk management is founded on three distinct categories of actions implemented at various levels: flood prevention, adaptive

spatial design, and emergency management. This strategy exhibits a significantly higher level of complexity in comparison to the conventional prevention-oriented approach (Mai et al., 2020). Multiple public authorities with different task orientations, legal competencies, and resources need to collaborate in order to execute this new approach.

(Owotoki et al., 2006). The intelligent models in FLORETO are used to align input characteristics or design requirements that identify properties prone to flooding with technically valid flood mitigation measures. Encouraging results have been obtained, demonstrating the potential of this data mining technique and clearing the path for its adoption in other areas for IFM. Kalyanapu and colleagues (2015) An analysis is conducted using the present Monte Carlo (MC) flood risk framework, comparing the annualized risk reductions of flood mitigation solutions targeting incidents with varying recurrence intervals. This study presents an analysis of the comparative advantages of implementing flood proofing measures in the Swannanoa watershed in North Carolina. The aim is to demonstrate the application of the annualized risk approach. In order to determine the comparative expenses and advantages of the 1% flood proofing (base case) and 12% flood proofing (alternate scenario) alternatives, simulations were conducted. The results showed that the base scenario reduced the estimated annual damage (EAD) by 98.9% compared to the current situation. In contrast to the current state of affairs, the EAD experienced a significant reduction of 80.4%. The annual comparison of predicted implementation costs and reductions in flood damage revealed that the 12% design delivered twice as much reduction in flood damages for every dollar spent on flood proofing, compared to the 1% design. This preliminary study confirms the effectiveness of an alternative analysis method that may be employed to assess the necessary level of flood control by considering the potential for reducing flood risk.

Kwak, Muraoka & Asai (2018) introduced the GiFM, which utilizes Earth Observation (EO) data and hydro-GIS geo-database to facilitate the exchange of information regarding the present condition of flood risk in transboundary river basins. This includes flood monitoring, forecasting, and the erosion of river embankments. The GiFM prototype for flood risk reduction provides a concrete illustration of consultation and an action plan to address urgent needs from various stakeholders, including decision makers and residents in vulnerable low-lying floodplains in Bangladesh.

The EU Floods Directive (Directive 2007/60/EC) establishes the use of several approaches to effectively handle flood hazards. Europe is increasingly prioritizing the adoption of less forceful

strategies, such as using the planning system to control construction in regions prone to flooding and advocating for the concept of living in harmony with floods. Although damage mitigation is crucial, it remains a serious worry. Consequently, there is now a market for devices that help individuals manage the risk of flooding, such as door and window guards and perimeter barriers. (Connelly et al., 2015). The utilization of flood-resistant and resilient technologies holds much promise in reducing the adverse effects of floods. Resistance technologies typically aim to impede the entry of water into structures, while resilient measures may permit water entry but expedite the recovery process for individuals, communities, and buildings (White et al., 2018).

The United Kingdom's strategy for managing flood risk is mainly dependent on the insurance industry. Due to government pressure, insurers in the United Kingdom decided in 1961 to provide almost universal coverage for floods. The risk of floods is included as part of a comprehensive package of property risks, with negligible differences in premium prices. The system is applicable to domestic insurance and small firms (Brown & Damery, 2002). However, large businesses are handled on a case-by-case basis to account for their distinct risks. Examining flood risks reveals the potential to advance sustainable development by implementing inventive partnerships between the private sector and the government to share responsibilities. Due to the anticipated rise in flood risks caused by climate change, forward-thinking insurers are implementing an extensive course of action. Their objective is to meticulously identify the primary risks by conducting thorough study and gathering relevant data. The organization is making efforts to increase awareness among various stakeholders, especially public authorities, and collaborate with them to effectively handle weather-related risks such as floods. They aim to enhance existing procedures or introduce new approaches to provide necessary protection and recovery services. In cases when they consider the risk to be too high to handle directly, they can nonetheless offer administrative services to ensure the implementation of an effective risk management system, similar to the approach taken by the National Flood Insurance Program in the United States. Insurance businesses can contribute to mitigating climate change by enhancing their internal environmental management practices and ensuring that their investments align with climate-friendly initiatives (Dahlström, K., Skea, J., & Stahel, W. R. (2003).

Coastal towns can utilize technology-driven solutions to achieve and safeguard sustainable development. These solutions have the potential to identify and address the interrelated

difficulties posed by climate change and disasters. Nevertheless, the growing utilization of global technologies for local disaster risk reduction (DRR) can either amplify or diminish intricate socioeconomic disparities, depending on the technology partnership approach chosen by the technologically prosperous and the less privileged. In order to avoid any potential mismatch between the measures needed to enhance local disaster resilience and the principles of disaster risk reduction (DRR), it is crucial to establish a robust connection between the technology-driven development projects in Jakarta and DRR (Latif, 2022).



## 2.2.5 IGO Policy Development Support and Flood Risk Management

In the aftermath of the 2004 Indian Ocean earthquake and tsunami, the world community reached a consensus on the United Nations Hyogo Framework for Action (HFA) for Disaster Risk Reduction, which was implemented from 2005 to 2015. The framework provided a clear and comprehensive guide for countries to enhance their resilience to disasters (Hollis, 2014; Shaw & Izumi, 2014). The text highlights the importance of governments creating national platforms and improving catastrophe governance. The Sendai Framework for Disaster Risk Reduction: 2015-2030 (SFDRR) was approved by United Nations member states in March 2015 as the replacement for the Hyogo Framework for Action (HFA). The Sendai Framework for Disaster Risk Reduction (SFDRR) recognizes the multidisciplinary aspect of disaster risk reduction (DRR) policy and calls on stakeholders to support governments. The international scientific community, as a key participant, continues to offer direction, research prospects, and partnerships to support countries in adopting the new framework (Calkins J. (2015).

Given that Africa's capability to construct institutions is eroding and that continent is still being marginalized at an alarming rate in the global economy, the writers doubt Africa's potential to achieve sustainable development. Inappropriate national policies have sparked the crisis in Africa (Ebohon, Field & Ford, 1997). However, according to Wubneh (2003) institutional elements such the politicization of policymaking, the lack of capacity prevalent in Africa, and policymakers' resistance to policy analysis are related to capacity building.

Van Herk et al., (2011) argue that there are opportunities for urban renewal and growth to lessen the vulnerability to flooding. The necessity of adequately integrating flood risk into planning processes is emphasized by a large body of recent research. Urban planning has not, however, had much experience integrating flood risk management. In addition to helping demonstration projects and their broader adoption, collaborative research can aid in the creation of policies and the eventual shift to integrated flood risk management. Additionally, it gives you more flexibility to employ various strategies, take a wider view of issues and potential solutions, convene stakeholders, and support capacity building (Izumi et al., 2019).

Esmail et al. (2022) provides evidence that existing laws actively encourage the integration of spatial planning and flood risk management. As a result, these legal responsibilities are clearly seen in spatial designs that increasingly prioritize the risk of flooding. However, the emphasis on addressing floods in policy terms did not consistently match the development efforts that included the impact of flooding. Initial data suggests that the current development may not

comply with the required preservation measures stated in the plans and may not sufficiently take into account the thorough evaluation of flood risks. Hence, it may be deduced that the relationship between legislation, policy, and development is complex and not simple. Analyzing the variables that impact their connection and establish the causal relationship (if any) would enhance comprehension of the possible incorporation of spatial planning and flood risk management (Ran & Nedovic-Budic, 2017; Green, 2017).

Market-based instruments (MBIs), when combined with command-based instruments, enable policy-makers to influence individual behavior in flood-prone zones by using market forces. As the negative effects of climate change become more noticeable in a specific area, it is becoming increasingly appealing to consider quantity-based MBIs that are now not possible. Existing price-based MBIs could be modified to strategically incorporate the growing likelihood of climate-induced flooding and erosion in coastal and delta regions (Filatova, 2014). In recent years, European policy-making has increasingly embraced a "catchment-scale" approach to flood risk management. One of the main goals of this approach is to encourage rural land use changes that can effectively mitigate flood risk. Rouillard et al., (2015) demonstrate that the implementation process is influenced by the local policy framework, the actions of those responsible for implementation, and the reactions of land managers to policy instruments.

The viability of flood management strategies is currently being scrutinized, particularly in Delta regions that have a history of recurrent flooding catastrophes. Policy change in the realm of flood risk management is crucial as it redirects focus, exertion, and capital (Penning-Rowsell, Johnson & Tunstall, 2017). In order to ensure the safety of their citizens, governments of welfare states constructed floodwalls and levees as a means of protection. Nevertheless, can these infrastructure solutions effectively accommodate the evolving dangers associated with floods? Several delta nations are adopting "flood risk management" (FRM) as an alternate strategy. The primary emphasis of FRM is on mitigating human susceptibilities to flood hazards rather than preventing the occurrence of floods (Bergsma, E. (2019). The People's Republic of China (PRC) has consistently suffered from the severe consequences of flood catastrophes due to its regular exposure to large-scale flood events. Flood risk management is essential for the country's socioeconomic development. Considerable resources have been dedicated to combat and manage flooding; yet, significant obstacles need to be overcome. Beginning with the notion of flood control, there has been a gradual and steady transition towards flood management and, more recently, flood risk management (Osti, R. (2017).

Regarding the overall structure for disaster risk management, it is crucial to emphasize that, as of right now, The Bahamas do not have a legislative framework for all-encompassing disaster risk management that specifically covers all risk management procedures associated with proactive, corrective, and reactive management. As previously stated, the primary legislative framework pertaining to disaster risk is the Disaster Preparedness and Response Act, which was enacted in 2008. This legislation clearly outlines who is responsible for what in terms of preparation and relief, and its primary policy instrument is the National Disaster Preparedness and Response Plan. To encourage a more comprehensive approach to disaster risk management (DRM) and the progressive identification and establishment of sectorial and territorial responsibilities for all DRM procedures, an updated policy framework is required (Lacambra et al., 2015). To properly control recurring urban flooding, Kampala City launched the Drainage Master Plan (DMP) in 2015. The results show that the recent governance reorganizations in Kampala produced a greater financial gain that reshaped drainage infrastructure (Arinabo, 2023).

## **2.3 Theoretical Framework**

It is anchored on Liberalism and World Society Theory. These theories have acted like lenses through which an examination of the interplay between global institutions, such as the United Nations Office for Disaster Risk Reduction, and national entities like the National Disaster Operation Center in Kenya has been done in managing flood risks. The emphasis that liberalism places on cooperation, economic interdependence, and the role of international organizations provides a foundational perspective through which to understand how and why states and international bodies collaborate on issues that cross national boundaries, such as disaster risk reduction. In this view, cooperation is not only possible but also essential in dealing effectively with today's complex global challenges. In contrast, world society theory prolongs the discussion toward explaining how global norms and practices of institutions affect individual nation-states beyond cooperation in influencing internal policies and practices. It postulates that the national policies and practices are guided by the globally expected culture and institutionalized norms, homogenizing the approach toward issues like disaster risk management among different nations.

### **2.3.1 Liberalism Theory**

The liberalism theory, originally based in the domain of international relations, is useful in explaining state and international organization cooperation and interaction in the management

of global challenges such as DRR. Such is the liberalism that is based on the ideas of Enlightenment thinkers like John Locke and Adam Smith, later expanded by scholars such as Immanuel Kant, and more contemporarily by theorists like Robert Keohane and Joseph Nye. On this view, liberalism assumes that the structure of international relations is not to be determined by anarchy and power play, which is what the realist argues, but also essentially by the interdependence and cooperation of states and non-state actors. This theory emphasizes the contribution of international institutions, norms, and economic interdependence toward explaining the rise of global cooperation and peace. Chief exponents, such as Keohane and Nye, have further developed it into a concept of complex interdependence that characterizes the multiple channels of interaction in contemporary IR, where military force is not the only or even primary tool of policy (Keohane & Nye Jr, 1973).

It assumes that the state is not the sole actor, but international organizations and non-state actors play vital roles in shaping international policies. International rules and organizations cushion the anarchic tendencies of the international system through the promotion of cooperation amounting to stable global order. Economic interdependence and international cooperation are fundamentally tied to the promotion of global peace and stability. Within the context of this study, liberalism theory explains how international frameworks or organizations, like UNDRR, help national disaster management operations insofar as they create cooperative networks and normative frameworks transcending national boundaries. It could therefore be seen that the role of UNDRR in capacity building, resource mobilization, innovation, and technology transfer is an embodiment of liberalist ideals, wherein international cooperation is rooted in the very logic of effective management for global challenges like flood risks in Kenya.

For liberalism, international cooperation on capacity building translates to increased capabilities and preparedness at the national level; therefore, a more coherent and effective approach toward managing disasters. From a liberalist standpoint, an international body akin to the UNDRR pooling or mobilizing resources is economic interdependence in action—pooled resources translate to better strategies for disaster response and mitigation. The transfer of technology and innovations from international organizations to national entities is reflective of the faith the liberalists place in knowledge and technology sharing towards solving global issues. Liberalism supports the view that, in a great way, international institutions shape the national framework of policy and hence develop policies not only relevant for the local but also globally informed and aligned to the international standards (Keohane, R. O., & Nye Jr, J. S. (1973). Nye, 1990).

In spite of its explanatory capabilities in terms of global cooperation, there are notable criticisms of liberalism theory. One of the criticisms is that it idealizes global cooperation while minimizing the intransigent power imbalances between states and global actors. In reality, dominant nations or powerful organizations tend to set the agendas and resource distribution in intergovernmental forums such as UNDRR with the potential to exclude less prominent actors such as Kenya from registering their interests (Mearsheimer, 1994). This follows the sentiments of critics from realism that global interactions continue to be driven by power relations and strategic interests within cooperative arrangements as well. Second is the belief that actors are rational and driven by common standards of conduct that do not always represent the complexity of institutional and political realities. Political susceptibilities, institutional flaws, as well as divergent national interests, commonly hinder the actual implementation of global arrangements and initiatives (Burchill, 2005). In the case of reducing global risk hazards, these dynamics impede cooperation in spite of formal arrangements, thus proving liberalism's dependence on idealized harmony as well as institutional efficiency to be unfounded.

### **2.3.2 World Society Theory**

The World Society Theory originated from the research of sociologist John W. Meyer and his colleagues and made considerable contributions to the advancement of the theory during the 1980s and 1990s. Holding that the world society is knitted together by a singular "world culture" comprising nation-states and international institutions, the work shows that the said culture has effectively or significantly impinged on the laws and practices of many nations, despite their local or regional circumstances. Meyer's influential publications, such as "World Society and the Nation-State" (co-authored with John Boli, George M. Thomas, and Francisco O. Ramirez in 1997), argue that global models constructed by these transnational groups do affect national actions and policy implementations.

The basic assumptions of World Society Theory relevant to this study include: Countries are products of global norms, standards, and models, while the latter defines rational and acceptable behaviors. These norms are often disseminated through international institutions, professional organizations, and transnational corporations. States are gaining similarities as they adopt global trends to become acceptable in the international sphere (Chirot & Hall, 1982). This phenomenon is what is known as isomorphism. This can be in three ways: mimetic (an instance where an organization imitates successful models), coercive (where international agencies influence organizations), or normative (organizations conform to professional norms). Even if

individual states may endorse international policies, there comes a difference in the formal endorsement of policies and their practical application. This is called decoupling. This occurs because of localized constraints or preferences that may not consistently align with global frameworks (Meyer, 2010).

The World Society Theory is applied to conduct an analysis that will determine the effects of the UNDRR as a member of the global community on disaster risk reduction vis-à-vis the development of the national disaster management plans in Kenya. This theory helps to understand to what extent the Kenyan disaster management policies, particularly in flood risk management, are aligned with or deviate from the global requirements of the UNDRR on DRR. The National Disaster Operation Center (NDOC) of Kenya is premised on international policies and standards of global disaster risk reduction (DRR), majorly informed by international frameworks like the Sendai Framework for Disaster Risk Reduction (Meyer et al., (1997). This adaptation is viewed from the perspective of World Society Theory to identify if it is primarily predicated on the need for global legitimation rather than local efficiency. The present paper discusses the influence of international norms on the urge to earn recognition for adhering to global standards in Kenyan policy on flood risk management. The objective is to verify if such international measures are well adapted to Kenya's specific geographical and socio-economic context or if they mainly serve to meet global requirements at the cost of local relevance and effectiveness at implementability.

Isomorphic reforms by the United Nations Office for Disaster Risk Reduction (UNDRR) are an important force for influencing the disaster management methods of Kenya. The UNDRR facilitates the implementation of globally recognized principles, methods, and policies in disaster management. This research will use the actions of the UNDRR as a case in analyzing how such astrategic behavior by various actors leads to mirroring, the use of carrots and sticks, and ultimately a set of shared norms in Kenya's NDOC. The article will help to highlight how global methods of disaster management are adapted and implemented in Kenya. This is made possible by observing how Kenya emulates models successfully used elsewhere, accepts norms under the pressure of international expectations, and applies professional standards for innovations as introduced by the UNDRR ((Meyer, 2010).

Decoupling means that the disaster management strategies practiced by Kenya are not entirely consistent with internationally recognized standards and policies (Meyer, 2010). Current research studies and sources will seek these inconsistent processes, determine the root of the

inconsistency, and establish its effects. In this regard, decoupling factors such as scarce resources, indigenous knowledge systems, cultural disparities, and political agendas may contribute to a gap between policy inspired by global standards and implementation in real-world situations. The study will investigate the areas of decoupling to assess the realistic challenges and barriers in place for the NDOC in aligning global standards with local implementation. This will shed light on certain complexities in implementing international disaster risk management frameworks in Kenya.

In spite of its utility in accounting for the global spread of norms and institutional models, there have been significant criticisms of World Society Theory. It is argued to overstate global convergence while discounting in its analysis the agency of local actors as well as resistance to global influences. The theory predicts that in most cases, states adopt global standards because of pressures for legitimacy within the global order but does little to explain the multiple ways that global models are reinterpreted, resisted, or transformed in accord with domestic requirements and circumstances (Acharya, 2004). In the case of disaster risk reduction, it is possible that such adaptations of UNDRR practices by Kenya may constitute formal compliance without actual integration of global standards in domestic practices in managing disasters.

A second criticism has to do with the decoupling concept, which though noted within theory, indicates a basic limitation of it. The theory does note that states can adopt global policies symbolically but diverge in practice as a result of domestic limitations. Critics then point out that the theory does not adequately explain why there is such a gap or provide sufficient resources to solve it (Beck & Drori, 2012). In the case of Kenya, such a gap can be the case of an inadequate supply of resources, cultural diversity, or the existence of domestic political restrictions that make it impossible to implement UNDRR standards in practice. Therefore, though it explains why global standards are taken up, the theory could be inadequate in analyzing the degree to which they become localized or implemented in national institutions such as the NDOC.

## 2.4 Conceptual Framework

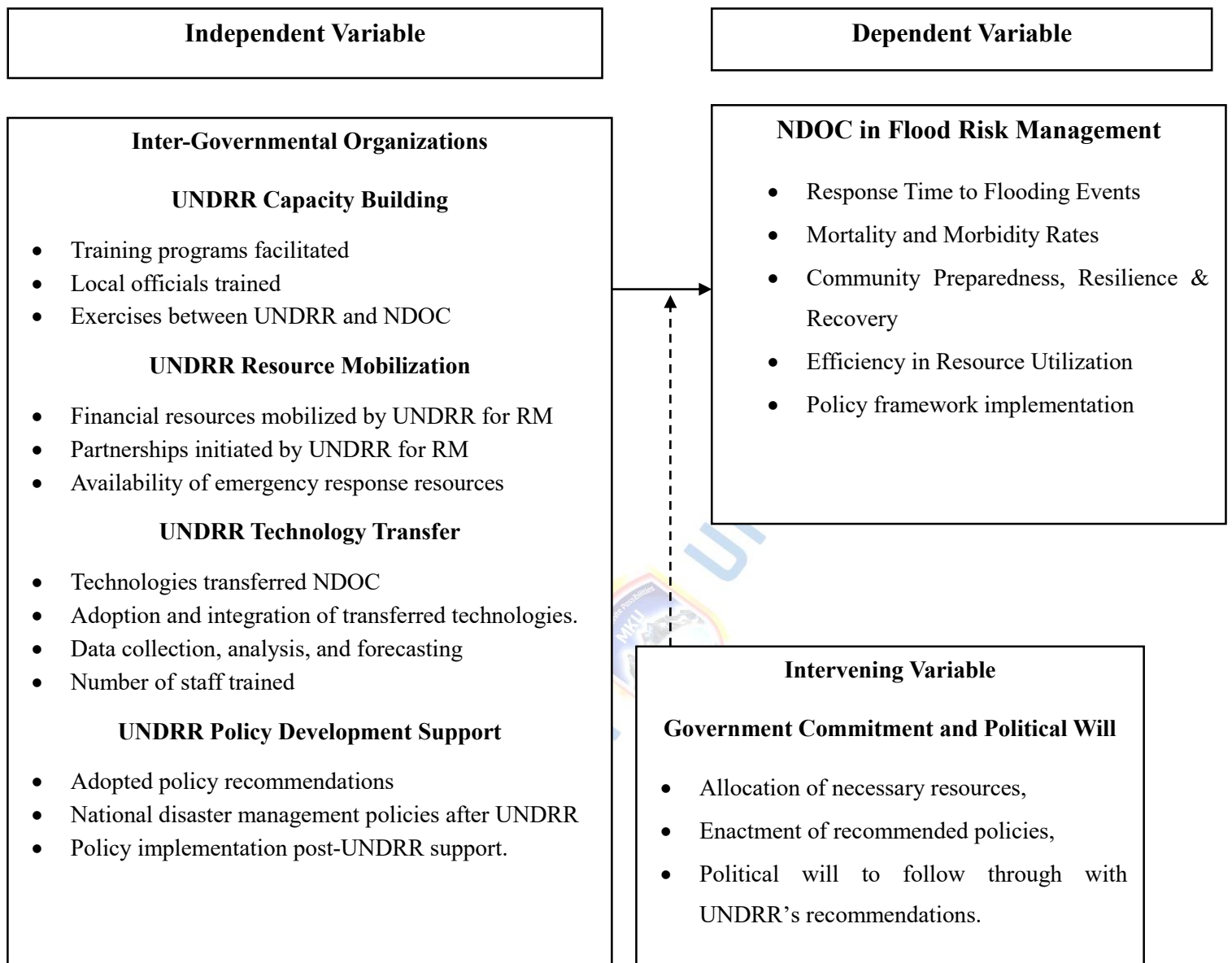


Figure 1: Conceptual Framework

Source, Researcher (2023)

The conceptual framework presents the study variables. The activities of UNDRR as an inter-governmental organization, capacity building, resource mobilization, innovation & technology transfer and policy & development support, influences the NDOC's effectiveness in flood management. This relationship is moderated by government commitment and political goodwill through resource, policy and implementation of the work by UNDRR in support of NDOC.

## CHAPTER THREE

### RESEARCH METHODOLOGY

#### 3.1 Introduction

This section presents the research methodology for the study. It includes the research design showing how the variables will be analyzed, the location of the study and its suitability, the target population and their relevance to the study. The section also has the sampling technique and process, the construction of research instruments, how they were tested for validity and reliability, how they were issued to the participants in data collection exercise. The section concludes with ethical procedures, a crucial aspect of a research process.

#### 3.2 Research Methodology

The research employed a quantitative methodology. The research focused on quantifying the inter-relations between the independent variables and the dependent variable that is the efficiency of flood risk management (Aguinis, 2024). The independent variable is of capacity building, mobilizing resources, innovation and technology transfer, and policy development support. The research involved quantitative data gathering through pre-designed closed-ended questionnaires distributed to chosen respondents within selected institutions. The instruments aimed to collect measurable parameters for each variable thereby making it possible to establish trends in addition to correlations between variables. The data collected were then analyzed using descriptive statistics (mean, standard deviation) as well as inferential statistical techniques to ascertain the magnitude of relationships between variables in addition to significance levels. The statistical analysis made it possible for the research to make measurements of the degree to which UNDRR's support affects national outcomes in managing floods.

Through its strictly quantitative approach, the research guaranteed objectivity, replicability of results in like circumstances, as well as generalizability of findings in other comparable contexts. Compared to mixed methods research that depended on interviews and reviews of documents to draw interpretative inferences, this method rested on statistically valid findings based on an organized dataset. By zooming in on measurable evidence, the policy-relevant conclusions could be formulated with regard to the measurable impact of inter-governmental support arrangements on national disaster readiness and response efficiency (Kumar, 2019).

### 3.3 Research Design

This study employs a descriptive research design, most appropriate for an approach to summarize phenomena of interest without manipulation of variables systematically. Descriptive research examines the status and attitudes presently held and does not further establish why or how they came to be. Descriptive research is mainly appropriate for capturing a snapshot of existing situations and perspectives (Aguinis, 2024). This approach was selected because it allowed for a very in-depth examination and explanation of the present condition of flood risk management in Kenya and how that is affected by interventions of the UNDRR, among others. A descriptive research design is a scientific methodology that involves aligning objective observations and accurate recordings of a subject's behavior without affecting the subject. Such research provides an accurate snapshot account of the features of a given individual, situation, or group. Descriptions was a source of hypothesis generation, or they provided the information needed accurately. The greatest strength of a descriptive research design in this instance was gathering correct information to define characteristics of the independent variables, capacity building, resource mobilization, innovation and technology transfer, policy development support, and the dependent variable: flood risk management. We used structured surveys to collect the data from personnel at the NDOC and stakeholder relevant stakeholders.

It quantified resources, tools inventories, and type of support that UNDRR had offered and evaluated the present condition of its capacity in flooding risk management. Existing documents and records were analyzed comprehensively. Here are the reports from UNDRR policy documents from the NDOC, and existing reports on Flooding Risk Management in Kenya. This review attempted to ground a basic understanding of the efforts versus the impact. The UNDRR-influenced strategies were also assessed in action with observations from disaster response mock drills and flood management exercises in practice. This also entailed visiting sites that are inundated by floods to see the strategies that have been implemented in a bid to avert or minimize the effects of the floods. The choice of a descriptive study design is justified by the need to correctly document and describe the impact of UNDRR interventions without any intention of changing current behaviors and practices in flood management in Kenya. It is possible to get an objective assessment of the current state and effectiveness of different programs, allowing them to be used in detail for changes in future policy and practice. Moreover, this form allowed the study to reach its purpose of documenting and analyzing the actual situation, that forms the baseline on which to check any changes or improvements necessary in disaster management processes (Cresswell, 2008).

### **3.4 Location of the Study**

It was conducted in Nairobi, Kenya. Nairobi City hosts the National Disaster Operation Center and the regional office of the United Nations Office for Disaster Risk Reduction. Nairobi is the commercial and political capital of Kenya; it was a perfect location to access a good number of resources on disaster management and international cooperation. Nairobi, being the country's capital city, is central to most of the governmental activities and hosts the principal office of the critical agencies of disaster management, as is the NDOC, for easy access to information, staff, and field operational knowledge of how FRM projects work and their dynamism. The UNDRR regional office in Nairobi was a significant asset for the current study. This opportunity enabled the writer to make firsthand observations and interactions with foreign personnel and, therefore, gather helpful information on the cooperation activities from respective governments on how to lower the associated risks of disasters. The choice of Nairobi as the place of study was necessitated by the desire to view and analyze the integrations within national and international disaster management approaches in an environment that would truly reflect the more excellent disaster risk management frame in Kenya. In that view, the study directly explored the influence that global frameworks and initiatives have on national policies and operations in Kenya because of Nairobi's position as a policy development and decision-making hub.

### **3.5 Target Population**

The focus of the study was on the officers and staff who are employed at the National Disaster Operation Center (NDOC) and also the United Nations Office for Disaster Risk Reduction (UNDRR) regional office in Nairobi, Kenya. These people are directly involved in managing and implementing the plans to reduce impact. They were significant for illustrating how the action that the UNDRR takes affects flood risk management within Kenya. The NDOC officers are individuals stemming from multiple agencies that contribute to the preparation, implementation, and review of the flood risk management operations. This includes coordinators of emergency responses, planners, technical professionals, and staff of an administrative nature. Staff working under the UNDRR regional office are considered policy shapers, advisors, project coordinators, and technical experts who are premeditated for the design and support of projects to reduce the risk of disasters within the region. The choice of the same is influenced by the fact that they are directly involved in and have had experience in catastrophe management and, more importantly, they have the potential to offer a lot in terms of insights into the efficiency of international collaboration in this domain. Due to the nature of

the research and the settings of operation for these organizations, it was not always possible to have detailed demographic data for the potential participants before the study. The exact number of participants who qualify, assignable to either position or role to the NDOC and UNDRR, was thus ascertained in the first administered test. The preliminary data collection provided critical information regarding the organization's structure and aid in refining the sampling strategy for the primary study.

### **3.6 Sampling Technique**

This research utilized the stratified random sample model. Such a model has been selected to ensure that specific targeted subgroups of the population are well represented in the sample to augment the reliability and the validity of the research findings. Stratified random sampling is a design where the target population is divided into subpopulations or strata according to shared characteristics or functions. Participants are then randomly selected from within each stratum. This method is highly effective in getting a relative representation of all important subgroups of the total population of the study. This allows for even more accurate estimates that would further be a true reflection of the entire population (Cresswell, 2008).

This research focused on the target population, which is stratified according to the specific functional positions within the NDOC and the office of UNDRR for the region. The strata that have been identified are: emergency response coordinators, planners, technical specialists, and the administrative working fraternity. First was identifying all the persons who fall under the above descriptions within the Ministry/NDOC and UNDRR. This stratification was based on the work definition and responsibilities forwarded by the respective organizations' human resource departments. Having defined the strata, a sample of persons drawn from each strata was selected using a random number table generated by the computer. This allowed an equal chance for any group's members to be selected in the research and, consequently, protected it from biased selection. Following the pilot stage, sample sizes could be adjusted for each stratum by the results of the pilot and practical considerations, such as response rates and the diversity of responses within each group.

### 3.7 Sample Size

The sample size for the study is distributed as follows in table 1.

Table 1: Sample Size Distribution

Category	Sample Size
Emergency response coordinators	34
Planners	12
Technical experts	7
Administrative staff	5
Policy makers	23
Advisors	5
Project coordinators	12
<b>Total</b>	<b>98</b>

Source, UNDRR Africa Regional Office; NDOC, (2024)

### 3.8 Construction of Research Instruments

A questionnaire is a research tool comprising a sequence of inquiries and prompts designed to gather information from individuals being surveyed. In this study, the instrument was utilized to conveniently gather data from numerous participants, which was highly varied and possess strong statistical significance (Aguinis, 2024). Therefore, questionnaires are especially useful in seeking the perceptions, practices, and results about the UNDRR interventions in flood risk management. Information that the questionnaire gathered related to the independent variable, including: capacity building, resource mobilization; innovation & technology transfer, and policy development assistance. Others include the effectiveness of flood risk management and the effectiveness of flood risk management, the dependent variable. The Likert-scale statements that the questionnaire carried responded to the extent of the Questionnaire and had the extent of disagreeing or agreeing with specific statements regarding the effect and effectiveness of the said variables. Additionally, the answers were framed through demographic and job-specific questions. This questionnaire was paper and electronic to facilitate the distribution of respondents' preferences and increase, therefore the response rates.

### **3.9 Testing for Validity and Reliability**

To ensure credibility of research findings the study tested for both validity and reliability of the research instruments. This ensured accurate examination of the intended measurements and the consistency across different sections of the study.

#### **3.9.1 Validity**

Validity is the ability of a research instrument to measure the specific construct it is expected to measure. It assures that the study truly reflects the natural world that the researcher wishes to present, thereby validating the truth and appropriateness of the inferences drawn from the information presented (Walliman, 2017). Before the actual study, a pilot study was carried out with approximately 10% of the intended study sample; the sample population was drawn from one department in the NDOC. The pilot study helped point out any potential problems in the structure of the questionnaire and interviews, such as unclear questions or concerns in data collection. The department used during the pilot study was omitted during the main research in the interest of neutrality. The instruments were assessed by experts in the field as well as by an academic supervisor; this is because the experience of those consulted could be used in enhancing the content validity of the questions, than each statement/question covered the critical area of study. All the research tools were improved through the initial evaluation by the pilot study and expert consultations, with the required adjustments to ensure clarity, relevance, and comprehensiveness further.

#### **3.9.2 Reliability**

Reliability is defined as the extent to which a measurement is consistent, stable, or constant over time. The greater the reliability, the higher the repeatability of the study results will be in future tests taken under similar conditions (Walliman, 2017). The internal consistency of the questionnaire was tested using Cronbach's alpha as a measure of statistical analysis. A Cronbach Alpha coefficient of 0.7 and above is acceptable in most social science research since it means good internal consistency among the items in the questionnaire. We used a retest test procedure for validity conducted using the same tool on the same sample but carried out at two different points in time. The technique tests the long-term stability of the tool.

Table 2: Reliability Statistics

Alpha	N of Items
.784	4

Source, Researcher (2024)

A Cronbach's alpha coefficient of 0.784 indicates acceptable to good internal consistency among the items in the scale or questionnaire. This value suggests that the items in the scale are reliably measuring the same underlying construct, such as a specific attitude, behavior, or skill, and that the responses are relatively consistent across participants.

### 3.10 Data Collection Procedure

The research proposal was first presented to the university research ethics committee for approval. University approval ensured that the study meets the institutional standards for ethical research. We then sought the approval of the relevant government institutions. This is through getting the go-ahead from the central government, NACOSTI. In addition, consent was also sought from other offices, such as the National Disaster Operation Center (NDOC) and the regional office of the UNDRR. This stage is vital in facilitating access to the facilities, participants, and data of the study. Pilot research entailed a sample size representing 10% of the entire population sample that was selected from one other department of the NDOC departments. The effort of the pilot analysis was to come up with the shortcomings in either the questionnaires or the interview formats, such as questions not direct or procedural lapses. Next was collecting information retrieved from the pilots' responses, followed by a factual analysis. This involved clarity, time taken, relevance of the questions, and the general contentment of the participants. Following the receipt of this feedback, we then went ahead to implement the necessary adjustments to the study instruments. This could be wording of questions, fine-tuning data collection procedures, or some logistical changes so that we better accommodated our participants.

Once all the tools were sealed in appropriate edits and the required permissions are secured, the initiation of data collection was on. This was through the administration of the final version of questionnaires and the conducting of key informant interviews as per the advanced directions. Every response was recorded with great diligence. The administration of the questionnaires was in both electronic and print mode, depending on the participants' preference. Audio technology

was used to record interviews only with participants' direct permission, and complete written transcripts were conducted. The data obtained from the surveys and notes of the interviews was very carefully recorded into a secure database in a systematic manner. Much emphasis was laid on protecting the anonymity and the confidentiality of the information of the participants. Data was safely stored on secure servers, with access granted only to study team members. Periodic backup was made to minimize potential data loss, and regular data integrity checks guaranteed the accuracy and reliability of data.

### **3.11 Proposed Data Analysis Techniques**

The information collected from the questionnaires and interviews was cleaned first in the essence of removing any inconsistencies or missing information. This ensured the dataset is complete and correct for further analysis of the information collected. The process included the identification and treatment of outliers, the coherence of responses, and filling in data elements that were missing, all to maintain the original data as complete as possible. What followed was how such data would be reduced into manageable forms for analysis. It is sorting responses based on preset variables as postulated in the questionnaire and interview guides. This was preparing data matrices relative to statistical analysis for quantitative data. The quantitative information gathered was analyzed using SPSS version 27 software. This is a robust software developed to handle complex statistical data analysis. The analysis started with descriptive statistics, whereby the general information about the variables under study, such as means, medians, modes, ranges, and standard deviation was elicited. Descriptive statistics clarified the distribution and central tendencies of data, which is very important in making sense of the scales used in the study. This helped in establishing the relationship between the independent factors, which comprised capacity-building, resource mobilization, innovation and technology transfer, and policy development support, with the dependent variable, which was efficiency in flood risk management.

### **3.12 Ethical Consideration**

The research strictly adhered to the following ethical standards to ensure the quality of the study and protect the dignity and rights of all participants. Each potential participant, answering surveys or taking part in interviews, received a full explanation of the purpose of the study, their role in the study, and how data obtained from them was used. All the participants were then given a consent form that contained clear statements that the participant had volunteered to take part in the research and could, therefore, withdraw from the research at any time without any

consequences. The confidentiality and privacy of the participants was maintained by all means. The data collected from the study had all personal identifiers removed and replaced with unique codes to assure anonymity. Data was stored safely in the servers with encrypted passwords, which was accountable only to the study team. The results were reported in an aggregate form only for findings derived from the published data not to be used to identify individual participants.

The research commenced only after obtaining all necessary authorizations and permits from the relevant university ethics committee, government bodies, and office—among others—the NDOC and UNDRR. This approach is ridden with legal and institutional frameworks regulating research and guarantee its accountability. Research activities were approached with the highest level of professionalism and integrity. This means he reported results accurately and objectively, whether they confirmed or failed to support the expected outcome. The research group did not try to engage in any activities that might cause harm to the study's integrity, such as data falsification and influence the response of the participants. Data acquired for this research was not forwarded to any aspect other than the research. The information was not used commercially and was not shown to third parties who were not fundamentally related to the research. All publications and presentations of the research were made in ways that protect the identity and privacy of the participants and further the scholarly goals of the study.

## CHAPTER FOUR

### RESEARCH FINDINGS, ANALYSIS AND PRESENTATION

#### 4.1 Introduction

This chapter presents the results of the data analysis based on the research objectives. It provides an interpretation of the findings. The analysis focuses on the four key areas: UNDRR capacity building, resource mobilization, innovation and technology transfer, and policy development support. This chapter first outlines the demographic characteristics of the respondents, followed by the presentation and analysis of the findings related to each research objective. The interpretation of the results is guided by the theoretical framework and relevant literature.

#### 4.2 Demographic Data

##### 4.2.1 Gender

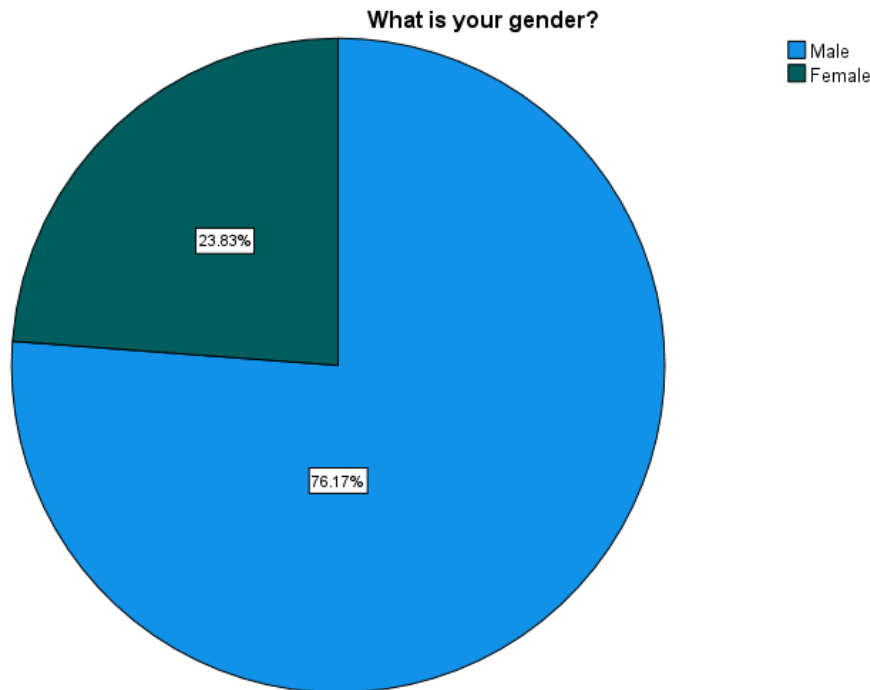


Figure 2: Gender

Source, Researcher (2024)

The analysis of the gender distribution reveals that a significant majority of the respondents, approximately 76%, were male, while about 24% were female. This disproportionate representation suggests a gender imbalance within the sample, which may reflect broader trends

in gender participation in disaster management roles or in the sectors involved in flood risk management in Kenya. The underrepresentation of females could indicate potential barriers to female involvement in disaster management operations, which may warrant further exploration. This disparity may also influence the perspectives and experiences shared in the study, potentially skewing the findings towards male-dominated viewpoints.

### 4.2.2 Highest Level of Education

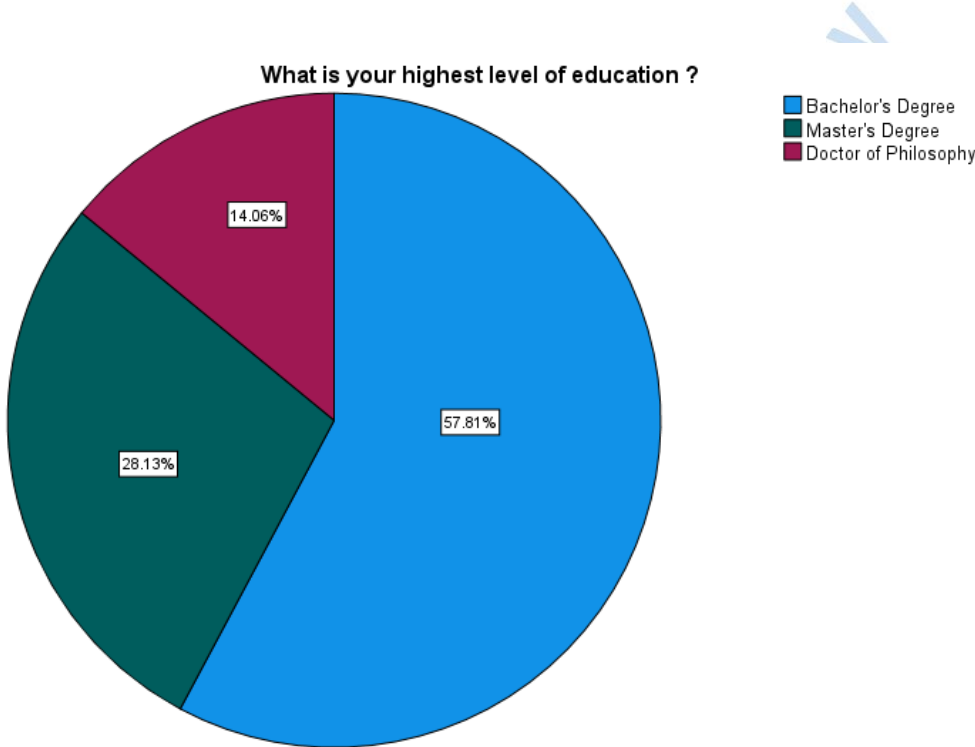


Figure 3: Highest Level of Education

Source, Researcher (2024)

The analysis of respondents' highest level of education shows that the majority, about 58%, hold a bachelor's degree, followed by approximately 28% with a master's degree, and about 14% with a Doctor of Philosophy (PhD). This indicates that the majority of the participants have an undergraduate level of education, which may reflect the typical educational attainment required for mid-level positions within disaster management sectors. The presence of 28% with master's degrees suggests a significant proportion of individuals with advanced, specialized knowledge, which may enhance the depth of expertise in flood risk management. The 14% with PhDs, while smaller, represents a highly educated segment likely to be involved in leadership, research, or policy-making roles. The overall educational distribution reflects a well-educated sample,

which could contribute positively to informed decision-making and innovation in disaster risk management strategies within the context of the study.

### 4.2.3 Period at Your Current Role

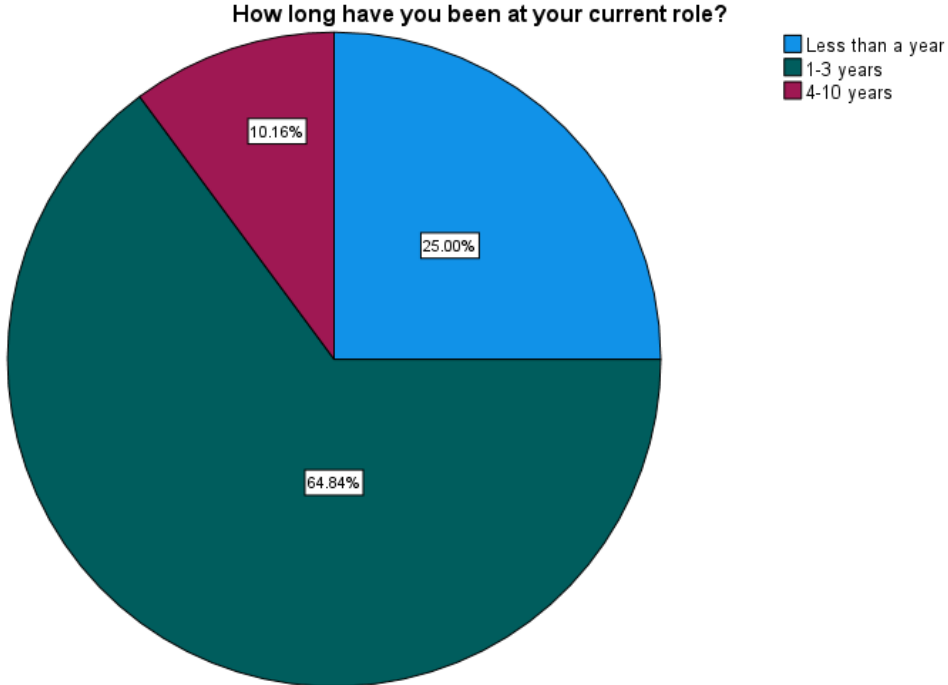


Figure 4: Period at your current role  
Source, Researcher (2024)

The analysis of respondents' tenure in their current roles shows that 25% have been in their positions for less than a year, while the majority, about 65%, have held their roles for 1-3 years, and approximately 10% have been in their roles for 4-10 years. This distribution indicates that a significant portion of the participants, 65%, are relatively experienced in their roles but still within the early to mid-career stage, suggesting they are likely familiar with the operational aspects of their positions and the related disaster management processes. The 25% who have been in their roles for less than a year represent a group that may still be acclimating to their responsibilities, potentially bringing fresh perspectives but with limited long-term experience. Meanwhile, the 10% with 4-10 years of experience reflect a smaller group of seasoned professionals, likely providing more strategic or leadership input based on their longer tenure. This range of experience highlights a workforce with a solid foundational understanding of flood risk management, with a mix of new and seasoned practitioners contributing to the data.

### 4.3 Descriptive statistics

### 4.3.1 IGO Capacity Building and Flood Risk Management

The first objective sought to answer the question, how does UNDRR capacity building influence National Disaster Operation Centers' flood risk management in Kenya?

Table 3: IGO Capacity Building and Flood Risk Management

	N	Mean	Std. Deviation
Has the training provided by UNDRR significantly improved our ability to manage flood risks?	256	2.06	1.323
Do I feel more confident in my flood risk management skills after attending UNDRR capacity-building programs?	256	2.00	1.383
Have workshops conducted by UNDRR introduced effective new flood management techniques?	256	2.08	1.437
Has collaboration with UNDRR enhanced our operational readiness for flood events?	256	2.23	1.415
Are capacity-building efforts by UNDRR directly applicable to the challenges we face during flood events?	256	2.04	1.300
Valid N (listwise)	256		

Source, Researcher (2024)

The mean score of 2.06, suggests that respondents generally disagreed with the statement, indicating that the training may not have been perceived as highly effective in improving flood risk management abilities. The relatively high standard deviation of 1.323 points to a wide variation in responses, suggesting that opinions on the effectiveness of the training were quite diverse. This variation may indicate differences in the relevance of the training across different groups, or it could reflect varying levels of pre-existing knowledge among participants. This wide range of views could suggest that while some individuals found the training helpful, others did not, underscoring the need for further investigation into the specific gaps in the training provided by UNDRR.

The mean score of 2.00 suggests that respondents generally disagreed or were neutral about the statement, indicating that attending the capacity-building programs did not significantly increase their confidence in managing flood risks. The relatively high standard deviation of

1.383 indicates a wide range of responses, reflecting considerable variability in how participants felt about the impact of the programs on their confidence levels. This dispersion suggests that while some individuals might have benefited from the training and felt more confident, others did not experience a meaningful improvement in their skills. The variability could be due to differences in the content of the training, individual learning styles, or pre-existing knowledge levels. This finding highlights a potential gap in the capacity-building programs' ability to consistently boost confidence in flood risk management across all participants.

The mean score of 2.08, suggests that respondents generally disagreed or were neutral, indicating that the majority did not perceive the workshops as having introduced significantly effective new flood management techniques. The high standard deviation of 1.437 points to substantial variation in the responses, implying that while some participants may have found the workshops useful and innovative, others did not share the same experience. This wide range of opinions could stem from factors such as the relevance of the techniques introduced in different contexts, the diversity of participants' backgrounds and experience levels, or the variability in the quality of workshop delivery. The considerable spread in responses suggests a need to tailor these workshops more effectively to ensure that the techniques introduced are perceived as valuable and applicable across a broader range of participants.

The mean score of 2.23, indicates that respondents generally disagreed or were neutral about the statement. This suggests that most participants did not feel that collaboration with UNDRR had significantly improved their readiness to manage flood events. The standard deviation of 1.415, which is relatively high, indicates considerable variability in the responses. This variation suggests that while some respondents may have felt that collaboration with UNDRR enhanced their operational readiness, a substantial number did not share this view. The wide range of responses could be attributed to differing levels of collaboration effectiveness across various regions, departments, or individual experiences with UNDRR. This finding highlights potential inconsistencies in how UNDRR's collaborative efforts are perceived and suggests that there may be room for improvement in making these collaborations more impactful and widely beneficial in enhancing flood preparedness.

The mean score of 2.04 indicates that respondents generally disagreed or were neutral, suggesting that most participants did not find the capacity-building efforts directly applicable to the specific challenges they encounter during flood events. The standard deviation of 1.300

shows a relatively wide range of responses, meaning there was significant variability in how respondents perceived the applicability of the training. While some may have found the capacity-building efforts relevant and useful, others did not feel that the training addressed the real-world issues they face during floods. This variation could be due to differences in the nature of flood risks across regions, varying levels of pre-existing knowledge, or gaps in how the capacity-building programs are aligned with local needs. The results suggest a need for UNDRR to better tailor its capacity-building initiatives to address the specific challenges that different regions or stakeholders face during flood events, ensuring the training is more widely applicable and effective.

**4.3.2 IGO Resource Mobilization and Flood Risk Management**

The second objective sought to answer the question, what is the influence of UNDRR resource mobilization on National Disaster Operation Center flood risk management in Kenya?

Table 4: IGO Resource Mobilization and Flood Risk Management

	N	Mean	Std. Deviation
Has UNDRR been effective in securing additional resources for flood management in our region?	256	2.64	1.486
Has the financial support from UNDRR allowed us to implement advanced flood risk management projects?	256	3.71	1.335
Have equipment and tools funded through UNDRR enhanced our flood response capabilities?	256	2.67	1.472
Has resource mobilization by UNDRR led to a quicker response time during flood events?	256	2.57	1.532
With UNDRR’s support, have we been able to maintain sufficient resources for emergency flood situations?	256	3.87	1.387
Valid N (listwise)	256		

Source, Researcher (2024)

The mean score of 2.64, indicates a mixed response, with participants generally expressing neutrality or slight disagreement regarding the effectiveness of UNDRR in resource mobilization for flood management. The high standard deviation of 1.486 suggests significant

variability in the responses, indicating that perceptions of UNDRR's resource mobilization efforts differed widely among respondents. Some may have experienced success in securing resources due to UNDRR's efforts, while others may not have seen a noticeable improvement in resource availability. This wide variation could be attributed to differences in regional funding needs, the responsiveness of local governments or stakeholders, or the effectiveness of UNDRR's efforts in specific areas. Overall, the results highlight that while some progress may have been made, there is room for improvement in making resource mobilization efforts more consistent and impactful across all regions.

The mean score of 3.71, which is above the neutral point, suggests that respondents generally agreed that UNDRR's financial support has contributed to the implementation of more advanced flood risk management projects. The standard deviation of 1.335 indicates a relatively high level of variability in responses, meaning there was a significant range in how participants perceived the impact of UNDRR's financial support. This variation could suggest that while many respondents have benefited from the funding, others may not have experienced the same level of financial support or may have faced challenges in utilizing the funds effectively for advanced flood management projects. The overall positive mean score suggests that UNDRR's financial contributions are generally viewed as beneficial, though the variability indicates that the effectiveness of this support may not be consistent across all regions.

The mean score of 2.67, indicates that respondents generally had a mixed or slightly neutral opinion about the effectiveness of the equipment and tools provided. This suggests that while some respondents may have noticed improvements in their flood response capabilities, others did not perceive a significant enhancement. The high standard deviation of 1.472 reflects substantial variability in responses, indicating that experiences with the equipment and tools funded by UNDRR varied widely among participants. Some respondents may have found the equipment highly beneficial, while others might not have seen a notable impact, potentially due to factors such as the suitability of the tools for their specific regional challenges, the quality of the equipment, or issues with training on how to use the tools effectively. Overall, the results points to a perception that UNDRR's funding for equipment and tools has had an inconsistent impact on flood response capabilities, highlighting the need for a more tailored approach to ensure these resources are better aligned with local needs and operational contexts.

The mean score of 2.57, indicates that respondents generally disagreed or were neutral about the impact of UNDRR's resource mobilization on improving response times during flood

events. This suggests that many participants did not perceive a significant improvement in their ability to respond faster to floods as a result of UNDRR's efforts. The high standard deviation of 1.532 reflects considerable variability in responses, indicating that while some respondents may have experienced quicker response times, others did not notice any significant change. This variation could be due to differences in regional contexts, the effectiveness of resource allocation, or challenges in translating mobilized resources into operational readiness. Overall, the mean and high variability point to a perception that UNDRR's resource mobilization efforts have had inconsistent success in speeding up flood response times. This highlights the potential need for more targeted interventions to ensure that resources are not only mobilized but also efficiently deployed to reduce response times during flood events.

The mean score of 3.87, indicates that respondents generally agreed that UNDRR's support has enabled them to maintain sufficient resources for handling emergency flood situations. This suggests that, overall, participants viewed the support from UNDRR positively in terms of resource adequacy for emergencies. The standard deviation of 1.387 indicates notable variability in responses, suggesting that while a majority of respondents felt they had sufficient resources, some did not share the same experience. The variation could reflect differences in how effectively resources have been distributed, regional disparities in resource needs, or differences in the capacity of various regions to manage these resources during flood events. The relatively high mean score suggests that UNDRR's support is seen as beneficial in maintaining emergency resources, though the variation highlights the need for more consistent resource allocation and management across different areas to ensure all regions feel adequately equipped for flood emergencies.

#### **4.3.3 IGO Innovation & Technology Transfer and Flood Risk Management**

The third objective sought to answer the question, what is the influence of UNDRR innovation & technology on National Disaster Operation Center flood risk management in Kenya?

Table 5: IGO Innovation & Technology Transfer and Flood Risk Management

	N	Mean	Std. Deviation
Have technology and innovations introduced by UNDRR significantly improved our flood prediction accuracy?	256	2.60	1.457
Has the adoption of new technologies recommended by UNDRR streamlined our flood management operations?	256	2.39	1.512
Are innovations transferred by UNDRR well-integrated into our daily flood risk management practices?	256	3.79	1.374
Are the technology and information provided by UNDRR relevant and up-to-date with current flood management needs?	256	1.96	1.220
Valid N (listwise)	256		

Source, Researcher (2024)

The mean score of 2.60, indicates that respondents generally had a neutral or slightly negative view of the impact of UNDRR's technology and innovations on improving flood prediction accuracy. This suggests that participants did not widely perceive a significant improvement in prediction capabilities as a result of these innovations. The relatively high standard deviation of 1.457 suggests a wide variation in responses, meaning that while some respondents may have experienced improvements in flood prediction accuracy, others did not see much benefit. This variability could be due to differences in how the technology was implemented across regions, the types of technology used, or the extent to which staff were trained in using these innovations effectively. Overall, the mean score and high standard deviation suggest that the impact of UNDRR's technology and innovations on flood prediction accuracy has been inconsistent, with some regions benefiting more than others. This points to the need for further refinement of technology implementation and possibly more targeted support to ensure that innovations lead to tangible improvements in flood prediction across the board.

The mean score of 2.39 suggests that respondents generally disagreed or were neutral about the statement, indicating that the majority did not perceive the adoption of UNDRR-recommended technologies as having significantly streamlined their flood management operations. The high standard deviation of 1.512 reflects considerable variation in the responses, indicating that while some participants may have experienced improvements in their operations due to the new

technologies, others did not notice any significant changes or may have even faced challenges with implementation. This variability could be due to differences in the suitability of the technologies for specific local conditions, the level of technological expertise within organizations, or challenges in integrating these technologies into existing systems. Overall, the results suggest that the adoption of UNDRR-recommended technologies has not consistently led to streamlined flood management operations. The wide range of experiences highlights the need for more tailored technological solutions and support to ensure that new tools are effectively integrated into operations and are aligned with the specific needs of each region.

The mean score of 3.79 suggests that respondents generally agreed that these innovations have been fairly well integrated into their daily flood risk management practices. This indicates a positive perception of the incorporation of new methods provided by UNDRR into regular operational routines. The standard deviation of 1.374 indicates a considerable range of responses, meaning that while many participants found the innovations to be well-integrated, others may have experienced inconsistencies in incorporating these innovations into their daily work. This variability could stem from differences in organizational capacity, varying levels of staff training, or the relevance of the innovations to specific regional contexts. Overall, the mean score indicates that the innovations transferred by UNDRR are generally being integrated into daily flood management practices, though the relatively high standard deviation points to room for improvement in ensuring that this integration is consistent and effective across all regions. Further support may be needed to address the challenges some respondents face in fully embedding these innovations into their operations.

The mean score of 1.96, suggests that respondents generally disagreed, indicating that many participants did not find the technology and information provided by UNDRR to be relevant with their flood management needs. The relatively high standard deviation of 1.220 indicates a significant variation in responses. While some respondents may have found the technology and information somewhat relevant, others felt that it was outdated or misaligned with their operational requirements. This variability could result from regional differences in flood management challenges, the pace at which new technologies are adopted, or discrepancies in how up-to-date the information is perceived to be. Overall, the low mean score suggests a perception that the technology and information from UNDRR are not sufficiently aligned with the evolving needs of flood management in certain regions. The variability indicates that further refinement is needed to ensure that the resources UNDRR provides are both current and contextually appropriate for addressing modern flood risks.

#### 4.3.4 IGO Policy Development Support and Flood Risk Management

The fourth objective sought to answer the question, how does UNDRR policy development support influence National Disaster Operation Center flood risk management in Kenya?

Table 6: IGO Policy Development Support and Flood Risk Management

	N	Mean	Std. Deviation
Has UNDRR played a crucial role in shaping our flood risk management policies?	256	1.95	1.195
Have policies developed with UNDRR's support been effective in mitigating flood impacts in our region?	256	2.04	1.254
Has UNDRR's involvement ensured that our flood management policies are comprehensive and proactive?	256	2.38	1.480
Are the policy guidelines provided by UNDRR clear and easy to implement?	256	3.63	1.319
Has our policy development process improved due to collaboration with UNDRR?	256	2.22	1.319
Valid N (listwise)	256		

Source, Researcher (2024)

The mean score of 1.95, indicates that respondents generally disagreed with the statement, suggesting that many participants did not feel that UNDRR has significantly influenced their flood risk management policies. The standard deviation of 1.195 indicates moderate variability in responses, meaning there was some divergence in opinions. While a small portion of participants may have recognized UNDRR's role in influencing policies, the majority did not perceive a strong impact. This variability might reflect differences in the extent of UNDRR's involvement across regions, the degree to which national or local policies align with UNDRR recommendations, or differing levels of engagement with UNDRR's policy guidance. Overall, the low mean score suggests that the influence of UNDRR on shaping flood risk management policies has been limited or not widely acknowledged by respondents. The variation in responses highlights the potential for more focused efforts by UNDRR to strengthen its role in policy development, ensuring that its guidance is better integrated into national and local flood risk management frameworks.

The mean score of 2.04, indicates that participants generally disagreed or were neutral about the effectiveness of these policies, suggesting that many respondents did not feel that the policies developed with UNDRR's support have been particularly successful in mitigating flood impacts. The standard deviation of 1.254 reflects a moderate level of variability in responses, indicating that while some participants may have seen positive outcomes from the policies, others did not perceive any significant impact. This variation could be due to differences in how effectively the policies have been implemented in various regions, how well they address local flood risk challenges, or the level of adherence to the policies in practice. Overall, the low mean score suggests that the policies developed with UNDRR's support have not been widely viewed as effective in reducing the impacts of floods. The variability in responses highlights potential gaps in policy implementation or regional applicability, suggesting the need for more tailored, context-specific policy interventions and better follow-through in ensuring that policies translate into meaningful flood risk mitigation.

The mean score of 2.38, indicates that respondents generally disagreed or were neutral, suggesting that many did not feel that UNDRR's involvement has led to the development of comprehensive and proactive flood management policies. The relatively high standard deviation of 1.480 suggests a wide range of responses, meaning that while some respondents might perceive UNDRR's involvement as beneficial in creating comprehensive and forward-thinking policies, others did not see such outcomes. This variation could reflect differences in regional policy needs, the extent of UNDRR's engagement in specific areas, or discrepancies in how comprehensiveness and proactivity are implemented across different regions. Overall, the mean score suggests that respondents were not highly satisfied with the comprehensiveness and proactivity of the flood management policies influenced by UNDRR. The significant variability in responses points to uneven perceptions of UNDRR's effectiveness, indicating a need for more enhanced efforts to ensure that policies are both forward-looking and sufficiently comprehensive to address evolving flood risks.

The mean score of 3.63, indicates that respondents generally agreed that the policy guidelines provided by UNDRR are relatively clear and easy to implement. This suggests a positive perception of the usability and clarity of the guidelines from the majority of participants. The standard deviation of 1.319 indicates a notable variability in responses, meaning that while many respondents found the guidelines clear and straightforward, others may have experienced difficulties in understanding them. This variation could be due to factors such as differences in regional contexts, varying levels of experience among users, or discrepancies in how the

guidelines are communicated or supported by additional resources. Overall, the mean score reflects a generally favorable view of UNDRR's policy guidelines in terms of clarity and ease of implementation, although the variability suggests that there may still be room for improvement in ensuring that these guidelines are consistently accessible and applicable across diverse regions and operational contexts.

The mean score of 2.22, indicates that respondents generally disagreed or were neutral about the statement, suggesting that most participants did not perceive a significant improvement in their policy development process as a result of collaborating with UNDRR. The standard deviation of 1.319 reflects notable variability in responses, indicating that while some participants may have experienced positive outcomes from the collaboration, others did not observe any meaningful improvements. This variation could be attributed to differences in the level of involvement with UNDRR across different regions, the extent of collaboration, or how well the support from UNDRR was integrated into local policy development processes. Overall, the low mean score suggests that the collaboration with UNDRR has not been widely viewed as having a substantial impact on improving the policy development process. The significant variability highlights the need for more effective support mechanisms to ensure that policy development is consistently enhanced through UNDRR's involvement, especially in areas where improvement is most needed.

#### **4.4 Discussion of Findings**

##### **4.4.1 IGO Capacity Building and Flood Risk Management**

Contrary to the literature which emphasizes the effectiveness of capacity-building initiatives in flood risk management, the findings of this study reveal notable challenges in UNDRR's capacity-building programs. Evers, Geißler, and Arthur (2015) posit that effective capacity-building involves equipping people, organizations, and communities with the necessary skills to adapt and respond to unique regional flood risks sustainably. However, the mean score of 2.06 (standard deviation 1.323) on whether UNDRR training has improved flood risk management suggests that many respondents did not perceive these training efforts as helpful, underscoring a gap between theory and practice. This contradicts Hagelsteen and Burke's (2016) assertion that institutional capacity development, when systematically implemented, should lead to tangible results in disaster risk reduction. The findings suggest that in practice, UNDRR's capacity-building initiatives have not consistently translated into improved outcomes in Kenya, highlighting the need for more region-specific approaches.

Similarly, Wubneh's (2003) study emphasized the significance of human and material resource availability in capacity-building, yet the low mean score of 2.00 (standard deviation 1.383) on increased confidence after training reflects a disconnect between the resources provided by UNDRR and the participants' ability to apply them effectively. This stands in stark contrast to Lamoree and Harlin's (2002) argument that well-integrated capacity-building programs can lead to significant improvements in disaster preparedness. While Ashley et al. (2012) advocate for active learning and innovation to enhance flood risk management, the low mean score of 2.08 (standard deviation 1.437) suggests that UNDRR's workshops have not adequately introduced innovative techniques that participants find valuable, contradicting the expectation that such approaches foster better adaptation to increasing flood risks.

The literature points to the importance of collaborative, dialogic approaches in enhancing stakeholder capacity (Buchecker, Menzel, & Home, 2013), yet this study's findings, with a mean score of 2.23 (standard deviation 1.415), show that collaboration with UNDRR has not significantly enhanced operational readiness for floods. This challenges the notion that stakeholder involvement, when well-designed, leads to social learning and improved flood management capacities, as suggested by Jha, Bloch, and Lamond (2012). The inconsistent perceptions of collaboration suggest that UNDRR's efforts have not been as impactful in fostering stakeholder cooperation and preparedness as described in the literature.

The findings further reveal a discrepancy between UNDRR's capacity-building initiatives and their applicability to local flood management challenges. While Sun et al. (2015) and Plummer et al. (2018) argue that modern approaches to water management emphasize social and human resources alongside physical and financial ones, the mean score of 2.04 (standard deviation 1.300) reflects dissatisfaction with how applicable UNDRR's capacity-building efforts have been in addressing specific flood risks in Kenya. This stands in contrast to the integrated flood management (IFM) models, such as FLORETO, which emphasize the need for tailored, localized interventions (Owotoki et al., 2006). In practice, UNDRR's efforts seem to have fallen short of delivering the localized and context-specific capacity development needed to effectively manage flood risks in Kenya.

The findings of this study expose a disconnect between the theoretical promise of IGO capacity-building efforts and their practical impact on flood risk management in Kenya. From a Liberalism Theory perspective, intergovernmental cooperation through institutions like the UNDRR is expected to foster national preparedness by promoting capacity-building,

knowledge sharing, and institutional strengthening. However, the consistently low mean scores (e.g., 2.06 on improved flood risk management and 2.00 on confidence after training) challenge this assumption. Liberalism assumes that such cooperation should lead to enhanced national capabilities and more effective disaster responses due to mutual benefit and interdependence (Keohane & Nye, 1977). The findings suggest that despite UNDRR's involvement, capacity-building initiatives have not been perceived as effective, pointing to a gap between the normative expectations of cooperation and the empirical realities on the ground.

Additionally, World Society Theory helps to explain how global norms and institutional models may be adopted symbolically but decoupled from local implementation. According to Meyer et al. (1997), countries adopt international models to gain legitimacy in the global system, often without fully integrating them into localized systems. The dissatisfaction expressed by respondents regarding the applicability of UNDRR training (mean score of 2.04) reflects this phenomenon of decoupling. This is where UNDRR's capacity-building programs may align with global standards but fail to resonate with Kenya's specific socio-ecological and operational context. This underscores a core critique of World Society Theory: that while isomorphic pressures may drive policy adoption, they do not guarantee local effectiveness. This is especially true when global frameworks are transplanted without sufficient adaptation to contextual realities such as resource scarcity, indigenous knowledge, and institutional constraints.

#### **4.4.2 IGO Resource Mobilization and Flood Risk Management**

The findings of this study challenge several key assumptions from the literature regarding the effectiveness of resource mobilization for flood management. According to Raungratanaamporn et al. (2024), collaborative disaster management involving multiple stakeholders is crucial for effective resource mobilization. However, the mean score of 2.64 (standard deviation 1.486) on the effectiveness of UNDRR's resource mobilization suggests mixed results, with many respondents indicating that these efforts have been inconsistent. This contrasts with the literature, which advocates for strong partnerships and resource-sharing frameworks to enhance disaster response capabilities (Raungratanaamporn et al., 2024). The results indicate that, in practice, UNDRR's resource mobilization has not been consistently impactful across all regions, suggesting a gap in the collaborative resource-sharing mechanisms that the literature emphasizes.

Makhanu (2018) and Nakagawa & Shaw (2004) highlight the challenges faced by developing countries like Kenya in mobilizing resources for disaster response and recovery, often relying on both local strategies and external aid. While the literature suggests that resource mobilization through international aid or local initiatives can effectively address disaster risks, the findings of this study show that UNDRR's financial contributions have not consistently translated into significant improvements in flood management. Although the mean score of 3.71 (standard deviation 1.335) indicates that respondents generally view UNDRR's financial support as beneficial, the variability in responses points to inconsistent results across different regions. This inconsistency contradicts the expectation that external financial aid, such as that provided by UNDRR, uniformly supports flood management efforts (Makhanu, 2018; Ng'Ethe, 1983).

The literature also emphasizes the importance of appropriate tools and equipment in disaster response. Feeny & McGillivray (2003) and Nnadozie et al. (2017) assert that timely provision of resources is crucial for effective disaster management, and that resource planning must consider both financial and technical needs. However, the mean score of 2.67 (standard deviation 1.472) from this study suggests that the equipment and tools funded by UNDRR have had only a moderate and inconsistent impact on enhancing flood response capabilities. This contradicts the expectation in the literature that well-funded and well-planned resource distribution significantly improves disaster response (Nnadozie et al., 2017). The findings highlight the need for a more tailored approach to align these resources with local needs and operational contexts, suggesting that UNDRR's current approach may not adequately address the specific challenges faced by regions in Kenya.

The mean score of 2.57 (standard deviation 1.532) on whether UNDRR's resource mobilization efforts have led to quicker response times during floods further challenges the literature. According to Lavelle (2011) and McArthur & Rasmussen (2019), multilateral funding and technical assistance should streamline disaster response by providing timely resources. However, the findings of this study indicate that resource mobilization has had limited or inconsistent success in reducing response times. This suggests that while resources may have been mobilized, they were not efficiently deployed, pointing to potential inefficiencies in how UNDRR's support has been operationalized. This finding challenges the assumption that international resource mobilization automatically leads to better preparedness and faster responses during disasters (McArthur & Rasmussen, 2019).

While UNDRR's support in maintaining emergency resources was seen as generally positive, with a mean score of 3.87 (standard deviation 1.387), the variability in responses highlights ongoing challenges in ensuring consistent resource availability across different regions. As Boulding & Pfaff (1972) and Van Bilzen (2015) note, grants and financial aid are often subject to specific conditions, and their effectiveness depends on how well they are managed and distributed. The findings of this study suggest that, while some regions benefit from UNDRR's resource support, others may struggle to maintain adequate resources for flood emergencies, further pointing to the need for more equitable resource allocation and management.

Keohane and Nye (1977), argue that international institutions help states overcome resource limitations through economic interdependence and pooled capabilities. However, the mixed perception of UNDRR's resource mobilization, evident in the mean score of 2.64 for effectiveness and 2.57 for impact on response times, reveals that this ideal of cooperation does not always materialize into tangible, efficient outcomes. The findings suggest that while financial support may exist (as shown by the relatively high mean score of 3.71), inefficiencies in deployment and alignment with local needs hinder the full realization of liberalist benefits in disaster response contexts. Moreover, World Society Theory helps explain why some regions benefit more than others. The global frameworks disseminated by institutions like UNDRR may appear uniform on paper but are experienced differently across varied geographies. The mean score of 3.87 on emergency resource availability, suggests that while some areas align effectively with international expectations, others lag behind. This could be attributed to limited absorptive capacity or weak institutional implementation. This underscores a key limitation of World Society Theory: while it explains global convergence in form, it does not fully account for local disparities in capacity, resulting in a symbolic adoption rather than substantive transformation of disaster risk management systems.

#### **4.4.3 IGO Innovation & Technology Transfer and Flood Risk Management**

The findings of this study challenge the optimistic view of technology transfer and innovation for flood management presented in the literature. According to Eva (2014), the transfer of technical knowledge is a widely accepted strategy for adapting to disasters, and technologies such as disaster-resistant materials, social networking platforms, and geographic information systems (Orimoloye, Belle & Ololade, 2021) are touted as highly effective for disaster risk reduction (DRR). However, the mean score of 2.60 (standard deviation 1.457) on whether UNDRR's technology has improved flood prediction accuracy indicates an inconsistent impact.

This finding contradicts the literature's suggestion that these technologies are universally successful. The variability in responses implies that while some regions may have benefited from these innovations, others have not, pointing to a need for more refined and context-specific implementation to ensure improvements in flood prediction.

The adoption of UNDRR-recommended technologies also appears to have fallen short of the literature's expectations. Van Popering-Verkerk & van Buuren (2017) argue that innovative flood management strategies, such as multilevel flood safety and adaptive spatial design, have shown great promise in countries like the Netherlands. Yet, the mean score of 2.39 (standard deviation 1.512) from this study suggests that these technologies have not consistently streamlined flood management operations in Kenya. The wide range of responses indicates that while some participants may have experienced improvements, others have not, highlighting a gap between theoretical benefits and practical implementation. This contradicts Dieperink et al. (2018), who suggest that adopting complex, risk-based flood management strategies should lead to greater operational efficiency.

While innovations transferred by UNDRR appear to be somewhat integrated into daily flood management practices, with a mean score of 3.79 (standard deviation 1.374), this integration is not consistent across regions. This finding contrasts with the literature's assertion that technology-driven flood management solutions should be easily transferable and effective across different contexts (Owotoki et al., 2006; Kwak, Muraoka & Asai, 2018). The variability in respondents' experiences suggests that while some regions have successfully embedded these innovations, others may struggle due to factors such as inadequate training, technical expertise, or regional differences in flood risk challenges. This undermines the assumption that technology transfer is a universally applicable solution to flood risk management, as suggested by Connelly et al. (2015).

Moreover, the mean score of 1.96 (standard deviation 1.220) on whether UNDRR's technology and information are relevant and up-to-date indicates dissatisfaction with the alignment of these resources to current flood management needs. This finding challenges the belief that global technological solutions can seamlessly fit local DRR contexts (Latif, 2022). The mismatch between UNDRR's technological innovations and the real-world needs of flood management in Kenya suggests that more attention must be paid to local adaptation, context-specific risks, and the evolving challenges posed by climate change. This finding underscores the need for a more nuanced and responsive approach to technology transfer in flood management,

contradicting the optimistic view of technology as a one-size-fits-all solution presented in the literature.

From a Liberal perspective, the transfer of knowledge and technology by IGOs is grounded in the belief that international cooperation enhances national capacity through the diffusion of technical expertise and shared solutions (Keohane & Nye, 1977). However, the low mean score of 2.60 on whether UNDRR's technologies improved flood prediction, and 2.39 on operational streamlining, suggests that the expected mutual benefits of cooperation through technological exchange are not being fully realized in practice. This undermines liberalism's assumption that innovation shared across borders will lead to automatic improvements in local disaster management outcomes. The inconsistency of these results also implies that cooperation, while present, has not been effectively contextualized, leading to uneven benefits across regions.

#### **4.4.4 IGO Policy Development Support and Flood Risk Management**

The findings of this study present a contrasting picture to the literature regarding the role of international frameworks like the Hyogo and Sendai Frameworks in shaping national disaster risk reduction (DRR) policies. According to Hollis (2014) and Shaw & Izumi (2014), international frameworks such as the Hyogo Framework and its successor, the Sendai Framework, provide comprehensive guidelines for enhancing national resilience to disasters. However, the mean score of 1.95 (standard deviation 1.195) in this study suggests that the influence of UNDRR on shaping flood risk management policies in Kenya has been limited or not widely acknowledged. This contrasts with the expectation that international frameworks drive substantial policy development and change at the national level, as highlighted in Calkins (2015). The findings indicate a need for more robust engagement between UNDRR and national policy-making processes to ensure that its guidance is integrated more effectively.

Esmail et al. (2022) assert that flood risk management policies must be integrated into spatial planning and development efforts to be effective. However, the mean score of 2.04 (standard deviation 1.254) from this study suggests that policies developed with UNDRR's support have not been widely viewed as effective in reducing the impacts of floods. This finding highlights potential gaps in policy implementation, regional applicability, or adaptation to local needs. The variability in responses points to the need for more context-specific interventions that are better aligned with Kenya's flood risk realities. This contradicts the literature's argument that well-formulated policies should lead to meaningful mitigation of flood impacts (Ran & Nedovic-Budic, 2017; Green, 2017). The disconnection between policy development and practical

outcomes underscores the importance of ensuring that policy frameworks are not only clear but also actionable and applicable at the regional level.

The mean score of 2.38 (standard deviation 1.480) reflects dissatisfaction with the comprehensiveness and proactivity of the flood management policies influenced by UNDRR. This contrasts with the literature, which emphasizes that flood risk management should be forward-looking and flexible (Van Herk et al., 2011; Izumi et al., 2019). The uneven perceptions of UNDRR's effectiveness suggest that while some respondents may recognize the value of international frameworks, others find them insufficiently tailored to address evolving flood risks. This finding suggests a need for more enhanced efforts from UNDRR to ensure that policies are not only comprehensive but also anticipate future flood risks, particularly in light of climate change and rapid urbanization.

Contrary to the general dissatisfaction with the impact of UNDRR on policy development, respondents did indicate a relatively favorable view of the clarity and ease of implementation of UNDRR's policy guidelines, with a mean score of 3.63 (standard deviation 1.319). This aligns with findings from Filatova (2014) and Penning-Rowsell, Johnson & Tunstall (2017), who emphasize the importance of clear policy instruments in flood risk management. However, the variability in responses suggests that while the guidelines may be clear, their applicability across diverse regions remains inconsistent. This highlights a gap between theoretical policy frameworks and practical implementation, suggesting that UNDRR's guidelines, while easy to understand, may need to be more adaptable to different regional contexts.

The mean score of 2.22 (standard deviation 1.319) indicates that collaboration with UNDRR has not been widely viewed as having a substantial impact on improving the policy development process. This contradicts the literature, which emphasizes the importance of collaboration between international organizations and local governments in shaping effective flood risk management policies (Rouillard et al., 2015). The variability in responses points to the need for more effective support mechanisms to ensure that policy development is consistently enhanced through UNDRR's involvement, particularly in areas where improvements are most needed.

From the lens of Liberalism Theory, UNDRR is expected to play a crucial role in enhancing policy development through cooperation, shared frameworks, and norm diffusion. The theory assumes that such cooperation produces mutual benefits, including better governance and more effective national disaster policies (Keohane & Nye, 1977). However, the low mean score of 1.95 on the perceived influence of UNDRR on national policy contradicts this ideal. It suggests

that international frameworks like the Sendai Framework have not been deeply internalized within Kenya's policy processes, thereby limiting their practical impact. This undermines the liberalist assumption that international cooperation naturally leads to stronger domestic policy formulation and institutional strengthening. Similarly, the World Society Theory perspective offers critical insights into the symbolic versus substantive adoption of global policy frameworks. According to Meyer et al. (1997), countries often adopt international norms and frameworks such as those promoted by UNDRR to signal alignment with global standards. However, this adoption may remain superficial from local implementation realities. The study's mean scores of 2.04 and 2.38 on the effectiveness and proactivity of UNDRR-influenced policies reflect such decoupling. While Kenya may formally endorse international disaster risk reduction guidelines, these may not translate into actionable or context-responsive strategies, particularly in regions with unique flood risk profiles. This reinforces the critique that global policy models are often insufficiently adapted to local governance systems, capacities, and environmental conditions.



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## CHAPTER FIVE

### SUMMARY, CONCLUSION AND RECOMMENDATIONS

#### 5.1 Introduction

This chapter presents the summary, conclusion, and recommendations for this study. It presents a precise summary of findings for each objective as well as the conclusions based on findings. The study then draws recommendations for practice policy making and future research.

#### 5.2 Summary of Findings

##### 5.2.1 IGO Capacity Building and Flood Risk Management

The findings suggest that UNDRR's capacity-building efforts have not consistently led to significant improvements in flood risk management in Kenya. The mean score of 2.06, with a standard deviation of 1.323, indicates that while some individuals found the training helpful, many did not, pointing to gaps in the training's effectiveness. Furthermore, the mean score of 2.00 (standard deviation 1.383) highlights a lack of confidence boost among participants, suggesting that the capacity-building programs have not uniformly enhanced participants' flood risk management skills.

The workshops conducted by UNDRR also appear to have limited impact, with a mean score of 2.08 (standard deviation 1.437) indicating the need for these workshops to be tailored more effectively so that introduced techniques are perceived as valuable and applicable. Similarly, the collaborative efforts between UNDRR and local stakeholders, with a mean score of 2.23 (standard deviation 1.415), reveal inconsistencies in how these collaborations are perceived, suggesting the need for more impactful and widely beneficial partnerships to enhance flood preparedness. The overall applicability of the capacity-building initiatives, with a mean score of 2.04 (standard deviation 1.300), indicates that UNDRR's training programs must be better tailored to address the specific challenges faced by different regions. These findings highlight the need for UNDRR to refine its approach to ensure that its capacity-building efforts are both relevant and effective in improving flood risk management across various stakeholders.

##### 5.2.2 IGO Resource Mobilization and Flood Risk Management

The findings indicate that UNDRR's resource mobilization efforts have made some progress, but their effectiveness has been inconsistent across different regions in Kenya. The mean score of 2.64, with a standard deviation of 1.486, suggests that while some positive steps have been

taken, there is considerable room for improvement in making resource mobilization efforts more consistent and impactful across all areas. UNDRR's financial contributions are generally viewed favorably, with a mean score of 3.71. However, the variability of 1.335 indicates that the effectiveness of this financial support varies between regions, pointing to the need for more equitable distribution and application of these funds. Similarly, the mean score of 2.67 (standard deviation 1.472) reflects mixed perceptions about the impact of UNDRR's funding for equipment and tools on flood response capabilities. This suggests the need for a more tailored approach to ensure resources are better aligned with local needs.

The resource mobilization efforts have also been perceived as having limited success in reducing flood response times, with a mean score of 2.57 (standard deviation 1.532). This finding underscores the need for more targeted interventions to ensure that resources are not only mobilized but also efficiently deployed to enhance timely flood responses. Despite these challenges, UNDRR's support in maintaining emergency resources is generally seen as beneficial, with a mean score of 3.87. However, the variation of 1.387 highlights the need for more consistent resource allocation and management across regions to ensure that all areas are adequately equipped for flood emergencies. This calls for improved coordination and distribution of resources to enhance flood preparedness and response across Kenya.

### **5.2.3 IGO Innovation & Technology Transfer and Flood Risk Management**

The findings indicate that the impact of UNDRR's technology and innovations on flood prediction accuracy has been inconsistent across different regions in Kenya. The mean score of 2.60, with a standard deviation of 1.457, suggests that while some regions or organizations have benefited from these innovations, others have not, highlighting the need for more refined and targeted support to ensure that technology implementation leads to tangible improvements in flood prediction accuracy across all regions. The adoption of UNDRR-recommended technologies has not consistently streamlined flood management operations, as reflected in a mean score of 2.39 (standard deviation 1.512). This variability points to the need for more tailored technological solutions and support to ensure that new tools are effectively integrated into flood management operations and aligned with the specific needs of each region.

Despite these challenges, the mean score of 3.79 indicates that the innovations transferred by UNDRR are generally being integrated into daily flood management practices. However, the relatively high standard deviation of 1.374 suggests that the integration is not consistent across all regions, and further support may be necessary to help some respondents fully embed these

innovations into their operations. The mean score of 1.96 and a standard deviation of 1.220 suggest a perception that the technology and information provided by UNDRR are not sufficiently aligned with the evolving needs of flood management in certain regions. This points to the need for further refinement of UNDRR's technological resources to ensure that they are current, contextually appropriate, and capable of addressing modern flood risks more effectively.

#### **5.2.4 IGO Policy Development Support and Flood Risk Management**

The findings indicate that UNDRR's influence on shaping flood risk management policies in Kenya has been limited. The mean score of 1.95, with a standard deviation of 1.195, suggests that respondents did not widely acknowledge the role of UNDRR in policy development, highlighting the need for more focused efforts to ensure UNDRR's guidance is better integrated into national and local frameworks. The effectiveness of policies developed with UNDRR's support is also viewed as limited, with a mean score of 2.04 (standard deviation 1.254). This suggests that these policies have not been widely effective in reducing flood impacts, pointing to potential gaps in policy implementation or regional applicability. More tailored, context-specific interventions are needed to ensure that these policies lead to meaningful flood risk mitigation.

Additionally, the comprehensiveness and proactivity of UNDRR-influenced policies were not highly rated, as reflected by a mean score of 2.38 (standard deviation 1.480). The significant variability in responses suggests uneven perceptions of UNDRR's effectiveness, indicating that more effort is needed to ensure policies are forward-looking and adequately address evolving flood risks. Despite these challenges, respondents generally found UNDRR's policy guidelines clear and easy to implement, with a mean score of 3.63 (standard deviation 1.319). However, the variability suggests room for improvement in making these guidelines consistently applicable across different regions and contexts. The mean score of 2.22 (standard deviation 1.319) indicates that collaboration with UNDRR has not been widely viewed as having a substantial impact on improving the policy development process. This highlights the need for more effective support mechanisms to enhance collaboration and ensure that policy development is consistently improved through UNDRR's involvement, particularly in areas where improvements are most needed.

### **5.2.5 Theoretical Findings**

From the Liberalism Theory perspective, there is an expectation that interdependence among nations based on shared interests and institutional interdependence gives rise to increased national capabilities and more efficient public service delivery. The findings of this study show that while UNDRR engagement has availed structural support in terms of building capacity, mobilizing resources, innovation, and policy advising, the practical impacts are uneven and inconsistent in nature. The assumption that cooperation through IGOs equates automatically to operational enhancement is therefore not realized. Rather, evidence is produced to show that cooperation between countries is required to be complemented by robust local systems, specific implementation, and adaptive engagement in order to be effective in actual impact. This piece of research thus adds to Liberalism Theory in the finding that interdependence between countries, while necessary, is insufficient in delivering on disaster resilience outcomes in low-capacity or institutionally limited environments.

In terms of World Society Theory, the research strongly supports the theory's main tenets of isomorphism and decoupling. The formal embracement of the Sendai Framework, by Kenya reveals the symbolic isomorphism with global expectations. The limited influence of these standards at the implementation level, captured in the low mean values on some of the variables, indicates that adoption is different from integration. This strengthens the argument that global models are instead celebrated for legitimacy purposes but with implementation hindered by domestic actors' locally rooted capacities, context insensitivities in adopting those models, and provincial disparities. The research therefore expands upon World Society Theory by demonstrating that global standards in managing disasters can be institutionalized in form but functionally decoupled from realities on the ground

### **5.3 Conclusion of the Study**

In conclusion, the study reveals that while UNDRR's capacity-building efforts, resource mobilization, technological innovations, and policy development support have made some progress, their effectiveness has been inconsistent across regions in Kenya. For objective one, capacity-building programs have not significantly enhanced flood risk management skills, indicating a need for more tailored training. Objective two shows that while financial contributions have been beneficial, resource mobilization and deployment require greater consistency and alignment with local needs. In objective three, UNDRR's technological innovations have had uneven success in improving flood prediction and management,

highlighting the need for further refinement and regional customization. For objective four, UNDRR's influence on policy development has been limited, with respondents calling for more impactful, forward-looking, and region-specific policy interventions.

## **5.4 Recommendations**

### **5.4.1 Recommendations for Practice**

- i. UNDRR should tailor its capacity-building programs to the specific needs of Kenya's diverse flood-prone regions by integrating localized training modules and indigenous knowledge systems into its curriculum. These modules should be co-developed with county disaster officers, Ward Administrators, and local experts, and focus on region-specific flood dynamics, traditional coping mechanisms, and practical, community-based flood preparedness techniques. This localized approach will support the National Disaster Risk Management Policy by strengthening grassroots resilience and correcting current urban–rural skill disparities.
- ii. UNDRR should adopt a risk-based, decentralized model of resource allocation, whereby equipment, financial support, and technical tools are distributed based on localized flood risk assessments and county-level response capacities. This approach should align with the Climate Change Act (2016) and the Disaster Risk Financing Strategy by establishing County Disaster Task Forces responsible for tracking, requesting, and coordinating UNDRR resources. This will reduce fragmentation and improve timely, targeted support during flood emergencies.
- iii. UNDRR should refine and adapt its technology transfer models to fit Kenya's diverse regional contexts by ensuring that flood early warning systems, GIS tools, and mobile platforms are not only translated into local languages but also supported with continuous on-site training and technical assistance. These technologies should be co-deployed with local innovation hubs or TVET institutions and embedded into county flood response plans, thereby enhancing uptake and consistent use. This aligns with Kenya's ICT Policy and the Climate-Smart Agriculture Strategy for resilient infrastructure.
- iv. UNDRR should deepen collaboration with county governments, indigenous knowledge holders, and national agencies to co-create region-specific, actionable flood risk management policies that reflect both global frameworks (e.g., Sendai) and Kenya's own Disaster Risk Management Policy and Climate Change Response Strategy. A national–county policy coordination platform should be established to minimize policy

fragmentation, align flood policies with real-time data and evolving risks, and ensure that frameworks are both forward-looking and implementable at the local level..

#### **5.4.2 Recommendations for Policy Making**

- i. Policymakers should mandate that all flood risk management capacity-building programs, be guided by county-level needs assessments. These assessments should be conducted jointly by the National Disaster Operations Center (NDOC) and County Disaster Committees, ensuring training addresses region-specific flood risk profiles. Further, national policy should require that capacity-building outcomes be tracked using measurable performance indicators, in alignment with the National Disaster Risk Management Policy.
- ii. Legislation should be introduced to establish a risk-based and equity-driven resource allocation framework for flood disaster preparedness and response. This should include provisions for UNDRR and other partners to align their resource support with data from Kenya's National Drought and Flood Early Warning System (NDFE-EWS) and county-level disaster risk maps. Such a framework would enhance transparency, close inter-regional disparities, and complement Kenya's Disaster Risk Financing Strategy.
- iii. Governments should develop policies that support the adoption and co-development of flood management technologies that are adaptable, inclusive, and regionally responsive. This includes creating incentives (e.g., tax relief, grants, or public-private partnerships) for local innovation actors to collaborate with UNDRR and others in adapting tools such as flood modeling software, mobile-based alerts, and GIS platforms. This recommendation aligns with Kenya's ICT Policy and Climate Change Act, promoting sustainable and context-sensitive innovation.
- iv. Policymakers should institutionalize mechanisms for co-creation, monitoring, and revision of flood risk policies in collaboration with both international bodies like UNDRR and local governments. This requires embedding DRR principles into County Integrated Development Plans (CIDPs) and establishing an inter-agency Flood Policy Coordination Unit under the NDOC. Such structures will reduce policy fragmentation, ensure dynamic alignment with the Sendai Framework, and enhance Kenya's ability to adapt policies in response to climate-driven flood risks.

## 5.5 Recommendations for Further Studies

- i. Future studies should investigate the region-specific factors influencing the effectiveness of capacity-building programs, particularly examining how local environmental, institutional, and cultural contexts affect learning uptake and post-training performance. Emphasis should be placed on identifying gaps in training content, delivery methods, and follow-up support that limit the long-term utility of capacity-building initiatives in different counties.
- ii. Further research should analyze the direct relationship between resource mobilization strategies and actual flood response outcomes, such as speed, coordination, and coverage. This includes assessing logistical bottlenecks, governance inefficiencies, and resource duplication or scarcity across regions—critical insights that could inform the development of a more responsive and risk-based allocation model for disaster resources in Kenya.
- iii. Additional studies are needed to assess the long-term impact and regional adaptability of UNDRR-recommended technologies used in flood prediction, communication, and response. This should include a critical examination of barriers to uptake, such as affordability, technical capacity, infrastructure gaps, and community perceptions, to identify what limits or enhances sustained integration of technology into local flood management practices.
- iv. Future research should evaluate the real-world outcomes of flood risk management policies developed with UNDRR's support by tracking their implementation across diverse regions over time. Studies should focus on understanding how political will, local governance structures, public participation, and social factors contribute to either the success or stagnation of policy reforms and should recommend adaptive policymaking approaches grounded in regional realities.

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## APPENDICES

### Appendix I: Informed Consent Form

Study Title: Influence of Inter-Governmental Organizations on National Disaster Management Operations: A Case of UNDRR Africa Regional Platform in Flood Risk Management in Kenya

Amani Mbiwa, MIR/2022/50650, ISSJE, Mount Kenya University

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#### Introduction

You are being invited to participate in a research study conducted by Amani Mbiwa. This study aims to assess the influence of the United Nations Office for Disaster Risk Reduction (UNDRR) on flood risk management in Kenya, particularly through its interactions with the National Disaster Operation Center (NDOC).

#### Purpose of the Study:

This research is being conducted to understand how international disaster management strategies are integrated into national practices and how these strategies enhance the effectiveness of flood risk management in Kenya.

#### What You Will Do:

If you agree to participate, you will be asked to:

- Complete a questionnaire, which should take approximately 15-20 minutes.
- Participate in an interview session, which may last between 30 to 60 minutes.

#### Risks and Benefits:

There are no significant risks associated with your participation in this research beyond those that exist in everyday life. While there are no direct benefits to you, your participation will contribute valuable information that could improve disaster risk management practices in Kenya.

#### Confidentiality

Your responses will be confidential. All data will be stored securely and will only be accessed by the research team. Any reports or publications resulting from this research will use only aggregated data and will not identify any participant personally.

#### Voluntary Participation

Your participation in this study is completely voluntary. You are free to decline to participate or withdraw from the study at any time without any penalty or loss of benefits to which you are otherwise entitled.

#### Questions

Should you have any questions about the study, please feel free to contact [Your Name] at the above contact details. You may also contact the [University's Ethics Committee] at [Ethics Committee's Contact Information] if you have questions about your rights as a research participant.

#### Consent

I have read the above information and have received answers to any questions I had. I consent to take part in this study.

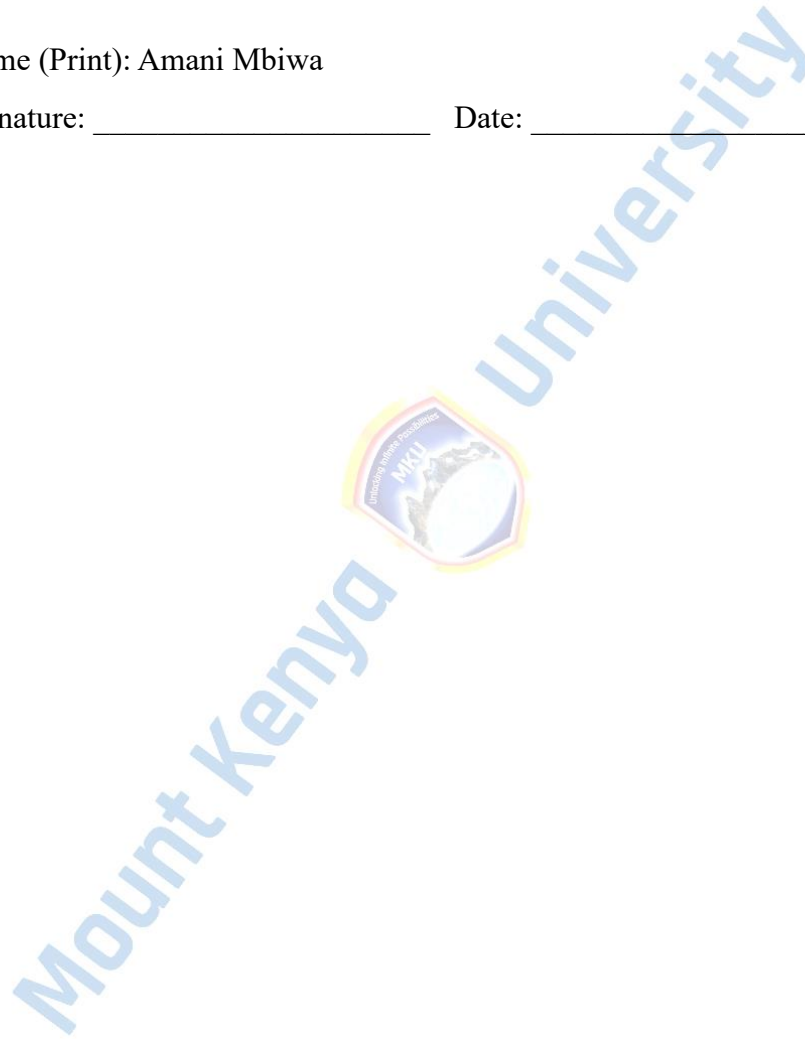
I understand that by signing this consent form, I am agreeing to participate in the research.

Participant's Name (Print): \_\_\_\_\_

Participant's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Researcher's Name (Print): Amani Mbiwa

Researcher's Signature: \_\_\_\_\_ Date: \_\_\_\_\_



## Appendix II: Questionnaire

### Section A: Demographics

1. What is your gender?                      Male ( )              Female ( )
2. What is your highest level of education
  - Diploma                      ( )
  - Bachelor's Degree              ( )
  - Master's Degree              ( )
  - Doctor of Philosophy ( )
3. How long have you been at your current role
  - Less than a year
  - 1 – 3 years                      ( )
  - 4 – 10 years                      ( )
  - 11 – 15 years                      ( )
  - 16 – 20 years                      ( )
  - Above 20 years                      ( )

### Section B: Objectives

#### Objective I: Investigate the influence of UNDRR capacity building on NDOC in flood risk management in Kenya.

1 = Strongly Agree, 2 = Agree, 3 = Neutral, 4 = Disagree, 5 = Strongly Disagree

Statement	SA	A	N	D	SD
The training provided by UNDRR has significantly improved our ability to manage flood risks.					
I feel more confident in my flood risk management skills after attending UNDRR capacity-building programs.					
The workshops conducted by UNDRR have introduced effective new flood management techniques.					
Collaboration with UNDRR has enhanced our operational readiness for flood events.					

Capacity-building efforts by UNDRR are directly applicable to the challenges we face during flood events.					
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**Objective II: Analyse the influence of UNDRR resource mobilization on NDOC in flood risk management in Kenya.**

1 = Strongly Agree, 2 = Agree, 3 = Neutral, 4 = Disagree, 5 = Strongly Disagree

Statement	SA	A	N	D	SD
UNDRR has been effective in securing additional resources for flood management in our region.					
The financial support from UNDRR has allowed us to implement advanced flood risk management projects.					
Equipment and tools funded through UNDRR have enhanced our flood response capabilities.					
Resource mobilization by UNDRR has led to a quicker response time during flood events.					
With UNDRR's support, we have been able to maintain sufficient resources for emergency flood situations.					

**Objective III: Assess the influence of UNDRR innovation & technology transfer on NDOC in flood risk management in Kenya.**

1 = Strongly Agree, 2 = Agree, 3 = Neutral, 4 = Disagree, 5 = Strongly Disagree

Statement	SA	A	N	D	SD
Technology and innovations introduced by UNDRR have significantly improved our flood prediction accuracy.					
The adoption of new technologies recommended by UNDRR has streamlined our flood management operations.					

We have successfully implemented cutting-edge flood management technologies thanks to UNDRR support.					
Innovations transferred by UNDRR are well-integrated into our daily flood risk management practices.					
The technology and information provided by UNDRR are relevant and up-to-date with current flood management needs.					

**Objective IV: Analyze the influence of UNDRR policy development support on NDOC in flood risk management in Kenya.**

1 = Strongly Agree, 2 = Agree, 3 = Neutral, 4 = Disagree, 5 = Strongly Disagree

Statement	SA	A	N	D	SD
UNDRR has played a crucial role in shaping our flood risk management policies.					
Policies developed with UNDRR's support have been effective in mitigating flood impacts in our region.					
UNDRR's involvement has ensured that our flood management policies are comprehensive and proactive.					
The policy guidelines provided by UNDRR are clear and easy to implement.					
Our policy development process has improved due to collaboration with UNDRR.					

## **Appendix III: Key Informant Guide**

### **Background Information**

1. Could you please describe your role and responsibilities at the National Disaster Operation Center (NDOC) or within the UNDRR regional office?
2. How long have you been involved in disaster risk management, particularly related to flood risk?

### **Objective I: Influence of UNDRR Capacity Building**

3. Can you describe any specific capacity-building initiatives by UNDRR that you have participated in or are aware of? What were their main components?
4. In what ways have these initiatives impacted the NDOC's approach to managing flood risks?
5. Are there examples where UNDRR-led training or workshops directly influenced decision-making or strategy during a flood event?

### **Objective II: Influence of UNDRR Resource Mobilization**

6. How has resource mobilization by UNDRR assisted the NDOC in enhancing flood risk management?
7. Can you discuss any specific resources (financial, equipment, human resources) provided by UNDRR and how they have been utilized?
8. What challenges, if any, have you encountered in the mobilization and allocation of these resources?

### **Objective III: Influence of UNDRR Innovation & Technology Transfer**

9. What technologies or innovations have been transferred to the NDOC through UNDRR initiatives?
10. How have these technologies been integrated into your flood risk management practices?
11. What impact have these technologies had on the effectiveness of your flood management strategies?

### **Objective IV: Influence of UNDRR Policy Development Support**

12. In what ways has UNDRR contributed to policy development for flood risk management at the NDOC?

13. Are there specific policies that were developed with UNDRR's support? How have they been implemented?

14. How effective do you think these policies have been in managing flood risks?

### **General Questions**

15. From your perspective, what are the strengths and weaknesses of the current collaboration between NDOC and UNDRR?

16. What improvements would you suggest enhancing the effectiveness of UNDRR's support in flood risk management?

17. Are there any other comments or insights you would like to provide that could help in understanding the role of UNDRR in enhancing flood risk management in Kenya?


### **Conclusion**

Thank you for your time.



Mount Kenya University

## Appendix IV: Letter of Introduction

  
**Mount Kenya University**

**DIRECTORATE OF GRADUATE STUDIES**

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MIRD/2022/50650

7<sup>th</sup> November, 2024

*National Commission for Science Technology & Innovation (NACOSTI)*  
*Off Waiyaki, Upper Kabete*  
*P.O Box 30623- 00100*  
**NAIROBI, KENYA**

Dear Sir/ Madam,

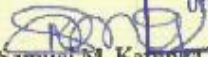
**RE: AMANI MBIWA -REGISTRATION NO. MIRD/2022/50650**


The purpose of this letter is to introduce the above named student who is pursuing **Master of International Relations and Diplomacy** in the department of **Psychology, Humanities and Languages** in the **School of Social Sciences**.

The title of the research is **“Inter-Governmental Organizations and National Disaster Management Operations: A Case of United Nations Disaster Risk Reduction (UNDRR) Africa Regional Platform in Flood Risk Reduction in Kenya.”** It has been cleared by the University’s Ethics Review Committee (Certificate attached) and now has to proceed to the field to collect data between **November, 2024 and January, 2025**.

Any assistance accorded to the student will be highly appreciated.

Thank you.


  
**Dr. Samuel M. Karunga, Ph.D**  
**Director, Graduate Studies**  
Enc.

  
Mount Kenya University  
P.O. Box 342 - 01000, THIKA  
Office of the Director,  
Graduate Studies

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Main Campus, General Kago Road, P.O. Box 342-01000 Thika.  
Call: +254 709 153 000 / +254 709 153 200

## Appendix V: ERC



# Mount Kenya University

REF: MKU/ISERC/4551 Date: 05 November 2024  
TO: AMANI MBIWA  
REG: MIRD/2022/50650

Dear Sir/Madam,

**RE: INTER-GOVERNMENTAL ORGANIZATIONS AND NATIONAL DISASTER MANAGEMENT OPERATIONS: A CASE OF UNITED NATIONS DISASTER RISK REDUCTION (UNDRR) AFRICA REGIONAL PLATFORM IN FLOOD RISK REDUCTION IN KENYA**

This is to inform you that **Mount Kenya University** has reviewed and approved your above research proposal. Your application approval number is **3273**. The approval period is **05/11/2024 - 04/11/2025**.

This approval is subject to compliance with the following requirements:

- i. Only approved documents including informed consents, study instruments, MTA will be used
- ii. All changes including amendments, deviations and violations are submitted for review and approval by **Mount Kenya University**
- iii. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to **Mount Kenya University** within 72 hours of notification
- iv. Any changes, anticipated or otherwise that may increase the risks or affect the safety or welfare of study participants and others or affect the integrity of the research must be reported to **Mount Kenya University** within 72 hours
- v. Clearance for export of biological specimens must be obtained from relevant institutions
- vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal
- vii. Submission of an executive summary report within 90 days upon completion of the study to **Mount Kenya University**

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) <https://research-portal.nacosti.go.ke> and also obtain other clearances needed.

**MOUNT KENYA UNIVERSITY**  
**ETHICS REVIEW COMM.**  
P.O. Box 342-0100  
**THIKA**

**Dr. Alfred Owino, PhD**  
Chairman, Mount Kenya University ISERC

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Main Campus, General Kago Road, P.O. Box 342-01000 Thika.  
Cell: +254 709 153 000 / +254 709 153 200  
Email: [info@mku.ac.ke](mailto:info@mku.ac.ke), Web: [www.mku.ac.ke](http://www.mku.ac.ke)

# Appendix VI: NACOSTI

 **REPUBLIC OF KENYA**

 **NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION**

**RefNo: 119302** **Date of Issue: 19/November/2024**

**RESEARCH LICENSE**



**This is to Certify that Mr. Amani Mwikya Mbiwa of Mount Kenya University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Nairobi on the topic: INTER-GOVERNMENTAL ORGANIZATIONS AND NATIONAL DISASTER MANAGEMENT OPERATIONS: A CASE OF UNITED NATIONS DISASTER RISK REDUCTION (UNDRR) AFRICA REGIONAL PLATFORM IN FLOOD RISK REDUCTION IN KENYA for the period ending : 19/November/2025.**

**License No: NACOSTI/P/24/42271**

**119302**  
**Applicant Identification Number**

**Director General**  
**NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION**

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**See overleaf for conditions**

## Appendix VIII: Turnitin Report

**Amani Mbiwa**

### INTER-GOVERNMENTAL ORGANIZATIONS AND NATIONAL DISASTER MANAGEMENT OPERATIONS: A CASE OF UNITED ...

Postgraduate 2025  
POSTGRADUATE 2024/25  
Mount Kenya University

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## Appendix VIII: Map of the Study Area



Mount Kenya