INTERAGENCY OPERATIONAL DYNAMICS AND COLLABORATIVE DISASTER MANAGEMENT IN NAIROBI CITY COUNTY, KENYA

CHRIS NDUNDA ZAKAYO
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DECLARATION

This research thesis is my original work and has not been presented for a degree in any other University.

Name: Chris Ndunda Zakayo

Reg, No: C82/CTY/37260/2017

Signature…….

Date……

This research thesis has been submitted for examination with our approval as the university supervisors.

Dr. Peter Philip Wambua, PhD

Lecturer

Department of Business Administration

Signature ……..……

Date …..……

Dr. Duncan O. Ochieng, PhD, MBS

Lecturer

Department of Security and Correction Science

Signature……..

Date……..

DEDICATION

I dedicate this study to my parents, Zakayo Ndunda and Dorcas Mutumi, my wife Rhoda Ndunge, daughters Sonia Mutumi and Kayla Kalunde.

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ABBREVIATIONS AND ACRONYMS

COK	-	Constitution of Kenya
CDM	-	Collaborative Disaster Management
COVID-19	-	Corona Virus Disease 2019
CRED	-	Center for Research in the Epidemiology of Disasters
DHS	-	Department of Homeland Security
DM	-	Disaster Management
DMA	-	Disaster Management Agencies
DMC	-	Disaster Management Cycle
DRB	-	Disaster Response Brigade
DRT	-	Disaster Response Team
FEMA	-	Federal Emergency Management Authority
FEMAT	-	Forest Ecosystem Management Assessment Team
GOK	-	Government of Kenya
GSU	-	General Service Unit
HD	-	Human Dynamics
HFA	-	Hyogo Framework for Action
IA	-	Inter-Agency
IAC	-	Inter-Agency Collaboration
IAOD	-	Inter-Agency Operational Dynamics
ICAT	-	Institutional Collective Action Theory
IFRC		International Non-Governmental Organization
INGO	-	International Non-Governmental Organization
IRIN	-	Integrated Regional Information Network
KDF	-	Kenya Defence Forces
KSA	-	Kenya Security Agencies
KRCS	-	Kenya Red Cross Society
MOH	-	Ministry of Health
NAPA		National Academy of Public Administration
NCC	-	Nairobi City County
NCCFRS	-	Nairobi City County Fire and Rescue Services
NDMU	-	National Disaster Management Unit

NDOC	-	National Disaster Operation Centre
NGO	-	Non-Governmental Organization
NPDM	-	National Policy for Disaster Management
NPS	-	National Police Service
NS	-	National Security
NYFD	-	New York Fire Department
NYPD	-	New York Police Department
NYS	-	National Youth Service
OD	-	Organizational Dynamics
PACE	-	Pan African Center for Emergency
PD	-	Process Dynamics
SFDRR	-	Sendai Framework for Disaster Risk Reduction
PAHO	-	Pan American Health Organization
RDT	-	Resource Dependence Theory
ROK	-	Republic of Kenya
SCT	-	Social Capital Theory
SOPs	-	Standard Operating Procedures
UAE	-	United Arab Emirates
UK	-	United Kingdom
UN	-	United Nations
UNDP	-	United Nations Development Programme
UNESCAP	-	United Nations Economic and Social Commission for Asia and the Pacific
UNISDR	-	United Nations International Strategy for Disaster Reduction
UNOCHA	-	United Nations Office for Coordination of Humanitarian Assistance
UNSC	-	United Nations Security Committee
USA	-	United States of America
WHO	-	World Health Organization

OPERATIONAL DEFINITION OF TERMS

Collaboration	**:**	An interactive process where two or more stakeholders work together to resolve problems that cannot be solved by the stakeholders on their own.
Collaborative Disaster Management	**:**	Disaster management involving multiple agencies working together to pursue and achieve common goals and objectives based on common interests between the agencies
Disaster	**:**	A serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, lead to one or more of the following: human, material, economic and environmental loses and impacts.
Disaster Management	**:**	The coordination and integration of every important activity in building, sustaining and improving the capacity for preparing, protecting, responding and recovering from existing or potential manmade or natural disasters.
Disaster Response	**:**	Provision of public assistance and emergency services immediately after or during a disaster in order to, reduce health impacts, ensure public safety, save lives and meet the basic subsistence needs of the affected people

Disaster Recovery	**:**	Is improving and restoring of Livelihoods, facilities and living conditions of communities affected by disasters, it also includes efforts to reduce disaster risk factors.
Emergency	**:**	A threatening condition in which normal procedures are suspended and extraordinary measures taken to avert a disaster
Emergency Management	**:**	The management and organization of resources and responsibilities to address all aspects of emergencies, in particular it involves preparedness, response and initial recovery steps.
Hazard	**:**	A dangerous condition, human activity, substance or phenomenon that is capable of causing environmental damage, economic and social disruption, property damage, and loss of life among other health impacts.
Human Dynamics	**:**	These are relational and interactional patterns between individuals participating in a collaborative arrangement which occurs at all levels of collaboration and they includes trust, communication, information sharing, power asymmetries, interaction of individual personalities as well as individual perception of others.
Integration	**:**	Different organizations become one organization in order to enhance service delivery

Interagency Collaboration	**:**	This is a clear, purposeful and carefully designed process or activity by two or more agencies working together to increase public value rather than working separately
Interagency Operational Dynamics	**:**	These are Organizational, Human and Processes dynamics that influence interagency Collaboration during Disaster Management
Junior and Field Disaster Officers	**:**	These are disaster management agencies subordinate staffs, in KDF officers who are not commissioned, in NPS members below inspectorate
Organizational Dynamics	**:**	These are dynamics which revolve around the manner in which the collaborative process is managed and they influences ability or willingness of stakeholders to participate in a collaborative process, they includes agency cultures, agency values, beliefs and philosophies, agency policies, structures and processes, agency goals, missions and mandates
Preparedness	**:**	The knowledge and capacities developed by individuals,' communities, recovery and professional organizations, governments, to effectively anticipate, respond to, and recover from the impacts of likely, imminent or current hazard events or conditions.

Process Dynamics	**:**	These are practical dynamics relevant to the collaborative process itself and includes collaboration capacity, leadership, coordination, clarity in roles and responsibilities, relationship building as well as shared understanding to problems
Senior Disaster Management Officers		These are officers in charge or representing the officer in charge of the various disaster management agencies included in the study.

ABSTRACT

The increasing frequency and severity of disasters is a global security concern which has led to adoption of new disaster management tools embracing collaborative disaster management (CDM). However, to achieve effective collaboration, there is need to understand how the dynamics involved interact and influence collaborative arrangements. Interagency Agency Operational Dynamics (IAOD) which influences CDM includes Organizational Dynamics (OD), Human Dynamics (HD) and Process Dynamics (PD). The study sought to assess the influence of IAOD on CDM in Nairobi City County (NCC), Kenya and specifically assessed the influence of OD, HD and PD on the effectiveness of CDM. The study was anchored on resource dependence theory, social capital theory and institutional collective action theory, it employed both cross sectional survey and phenomenological research designs. Target population was 3045 persons working with disaster management agencies in NCC and a sample size of 317 was selected where senior DMAs were purposively sampled, stratified sampling and simple random sampling was applied to select junior respondents. Data collection instruments used in the study were questionnaires and key informant interview guide. Quantitative data was analyzed using descriptive statistical procedures and inferential analysis specifically linear regression. Qualitative data was analyzed thematically. Findings of the study revealed that there is a significant positive relationship between IAOD and CDM where a correlation coefficient (R) of R=0.326 was obtained, this implied that IAOD influences CDM performance fairly with a strength level of 32.6%. Coefficient of determination (R^2) was R^2= 0.106: P= 0.00, this implies that 10.6% of variability in CDM is explained by IAOD. As regards influence of specific dynamics on CDM, the study revealed that a correlation coefficient of r =0.203; P= 0.001 was established for OD on CDM, this implies that OD contribute 20.3% of the outcome, for HD and CDM a correlation coefficient r = 0.288; P = 0.000 was established, an indication that HD contributes 28.8 % of outcome while for PD on CDM, a regression coefficient r = 0.191; P= 0.002 was established, an implication the contribution of PD to CDM is 19.1%. From the findings, HD had the greatest influence on CDM compared to other dynamics. The study concludes that managing diversities as a result of inevitable differences in agency cultures, structures, procedures, beliefs, values and philosophies is key to achieving successful collaboration. Regular interactions between agencies create an understanding of each other's strengths, weaknesses, cultivate trust and help in forming and expanding CDM networks and that having a single disaster coordinative agency is key as it improves coordination process by minimizing competition over which leader or agency is taking charge during CDM. The study recommends the development of policy to guide CDM by managing diversities, creating opportunities for regular interaction through joint training, workshops and meetings and the creation of a single national coordinative agency to be replicated at all levels to offer effective leadership in CDM.

CHAPTER ONE

INTRODUCTION

This study seeks to explore the interagency operational dynamics influence on the functioning of a collaborative disaster management approach in Nairobi City County, Kenya. This chapter presents the background to the study, statement of the problem, purpose of the study, research objectives, research questions, significance of the study, scope of the study, limitations and delimitations of the study

1.1 Background to the Study

According to the Center for Research on the Epidemiology on Disasters (CRED), there is a global rise in frequency and severity of both human induced and natural hazards causing disasters (CRED, 2015). Data from CRED (2020) indicates that global losses as a result of disasters amounts to US $ 259 billion, with 26 million individuals affected annually. This global rise in disasters according to Sapir (2019a) is shocking and an alarming trend which calls for effective strategies for management of disasters. According to UNESCAP (2016), recurrence of disaster has started to become a "new norm" in the world, with increasing occurrence causing serious disruption to society.

Amongst the various disaster types, hydro-meteorological extreme events which include floods, droughts, tsunamis, hurricanes, typhoons and storm surges have caused more deaths and affected large populations in the past two decades (Sapir, 2019b). Recent global catastrophic events have highlighted that both developed and developing countries are not spared from disasters, where countries previously deemed not disaster prone are

now experiencing an increased intensity and frequency of natural hazards causing disasters (Yassin, 2015; Sulaiman, Teo, Fermando, Shiau, Roslan& Abdul, 2019).

Disaster management according to UNISDR (2012) involves coordinating and integrating all activities necessary in building, sustaining and improving the capabilities for preparing, protecting, responding and recovering from disasters. This definition outlines all the various phases of disaster management which includes; mitigation, preparedness, response, and recovery. Disaster management process is often modeled as a cycle with no beginning and no end as each phase builds into the other. Mitigation measures in disaster management are pre-activities that are carried out to reduce or minimize impacts of a hazardous event (UNISDR, 2017).

According to FEMA (2010) these activities are both structural and non-structural measures such as policy changes that reduce the negative impact of hazard. FEMA (2010) describes disaster preparedness as involving programs and activities which are developed in advance of a disaster and designed to ensure capabilities at individual, community and state level to support response to and recovery from disaster (FEMA, 2010). According to Bullock, Haddow & Coppola (2017), disaster preparedness can be realized by strategic positioning of supplies, evacuation strategies, emergency planning, and relevant training among other activities.

Disaster response according to Bullock et al (2017) is the most scrutinized activity by members of the public. This is because it involves actions taken to protect the public by reducing impacts of the hazard during a disaster, the focus is always the provision of

immediate and short -term needs (UNISDR, 2012). Recovery refers to the restoration of normalcy after a disaster incident in which mitigation is incorporated during rehabilitation and reconstruction stages of the affected community, the division between response stage and recovery is not clear cut, since some response actions may extend into the recovery stage (UNISDR, 2012).

Disasters caused by either natural or man-made events appear to be steadily increasing in intensity and frequency globally, yet agencies responsible for management of disasters are often failing (Noran, 2014). The failure by disaster management agencies to manage disasters effectively is a global security concern which has resulted to an increasing global consciousness and the need to strengthen disaster management activities (Kirton, 2013).This global security concern has resulted to adoption of collaborative disaster management approaches that engage all sectors of the society to participate in disaster management in a decentralized manner rather than the traditional disaster management tools (WHO, 2017).

In traditional disaster management structures, disaster management actors are organized in centralized and top down command and control system, with pre-established authority structures. The existence of the pre-established authority structures and emphasis on command and control by the traditional disaster management model means that non state actors are more likely to be excluded in key decision making since decisions are top down through bureaucratic means. According to Kapucu & Garayev (2011), traditional disaster management structures have proved to be ineffective in managing disasters. In this

regard, collaborative decentralized systems of disaster management are increasingly being instituted to address disaster problems around the world (Hileman & Bodin, 2019).

Decentralized approaches in disaster management engage all sectors of the society from government agencies, private sector nonprofit organizations to volunteers in a networked manner. This inclusion of disaster management actors across sectors and levels results to a more efficient way of addressing disaster management since participating agencies are able to jointly make decisions, define and reach common understanding to problems. According to Samsudin & Hussain (2016) there is need to move from traditional response efforts towards decentralized disaster management processes, especially from single agency to interagency collaboration.

The change from traditional approaches of disaster management to decentralized mechanisms of managing was necessitated by the need for collaboration during all phases of the Disaster Management Cycle (DMC). In particular, disaster management systems based on interorganizational collaboration among disaster management agencies (DMA) are increasingly being adopted (Agostino & Arnaboldi, 2018). International disaster policy and practitioner discourses alike loud interagency collaboration in disaster management, where global disaster frameworks like Hyogo framework for action (UNISDR 2005) and its successor the Sendai Framework support disasters to be managed in a networked collaborative manner.

There are many benefits to be realized if disasters are managed through interagency approach as opposed to centralized traditional disaster management approaches (Gazley,

2017). These benefits include helping DMA to gain economies of scale, addressing complex social issues by eliminating duplication of processes and through sharing of resources effectively (Markovic, 2017). Managing disasters collaboratively according to Silver & Jansen (2017) result to expansion of networks, creation of new knowledge, promote innovation and develops new solutions for social issues by offering organizations with limited capacity and capability to create partnerships to share resources, information and expertise. Collaboration improves collective actions among responding sectors with responsibilities and sharing of resources (Christensen & Ma, 2020), promotes innovation (Hartley & Rashman, 2018), and provides opportunities for organizations to learn (Provan, Kenis and Human, 2015)

Despite the increase in the development of collaborative disaster management tools to manage disaster, various studies and practitioners of the concept have noted that multi–organizational collaborative process is highly dynamic and complex, thereby difficult to achieve (Tang, Shao, Zhou & Hu, 2021).The complexities in achieving CDM are brought about by diversity in competences, knowledge, skills, and procedures of the various disaster management agencies which have different interests and goals. These diversities present human, practical and organizational dynamics which influence the effectiveness of CDM. According Nowel, Steelman, Velezo& Yang (2018) there is lack of understanding of the impact of relational, practical and organizational on the outcomes of CDM. The implication is that there is need to understand the interaction of the various dynamics involved and examine how they specifically interact and influence CDM process outcomes.

According to Bryson, Crosby and Stone (2015) there are three key dynamics which influences CDM arrangement and their interaction presents governance challenges to achieving effective interagency collaborations. These dynamics include organizational dynamics (OD), human dynamics (HD) and process dynamics (PD). OD revolves around the manner in which collaborative process is managed and they influence the ability or willingness of stakeholders to participate in collaborative process, they shape the development and implementation process of collaborative arrangement. The implication of this is that OD should be taken into consideration at the onset of any collaborative work since they are key in determining the ability or willingness of stakeholders to engage in collaborative process during disaster management.

Failing to consider OD at the onset of any collaborative disaster management process will present collaborative governance challenges brought about by differences in governance structures of the different organizations involved in CDM. OD includes agency structures, agency policies, agency values, beliefs and philosophies, agency principles, priorities, goals, missions, agency cultures and language, agencies commitment and perceived role in collaboration. According Nabatchi and Balogh (2012) collaborations among stakeholders is dependent on starting organizational dynamics, the implication of this is that, there should be understanding by practitioners and policy makers on the organizational dynamics involved in CDM, how they influence the starting of such collaborations and above all how the difficulties poised by such dynamics can be mitigated to achieve effective CDM.

Diversities in organizational procedures, policies and structures according to Eide, Haugstveit, Halvorsrud, Skjetne, & Stiso (2012) results in complexities among people involved in collaborative process during DM. Despite the knowledge that differences in stakeholders' procedures, policies and structures results to complexities among people, there has been little that has been done to address the challenges and harnessing the opportunities as a result of such differences, this is evident from the continuing failures in CDM. It is also important to note that differences in agency structures, policies and procedures must not always result to complexities, as such diversities may also be a source of innovations which may go along in improving CDM. Therefore, this study sought to address this problem by exploring ways through which such differences influence collaborative processes during CDM and how they can be managed to ensure effectiveness of collaboration processes during CDM.

According to Palttala, Boano, Lund & Vos (2012) agencies have tendencies to pursue their own goals, missions and mandates during CDM rather than the combined CDM goals and missions which results to difficulties in achieving CDM effectiveness. Pursuing different interests, mandates and goals by the different agencies involved in collaborative processes results to difficulties like reaching agreements on institutional and operational dimensions, competition among the different agencies involved. This greatly influences the effectiveness of the CDM arrangements (Bengtsson, Raza-Ullah &Vanyushyn, 2015). The implication of this is that agencies involved in CDM should have specified roles and responsibilities to play during CDM so as to avoid competition and the tendency to pursue own goals and interests.

Despite the knowledge that agencies sometimes like pursuing their own goals and interests during CDM which has always resulted to poor performance of collaborative processes, the same tendency has continued to be observed during CDM. Therefore, this study sought to find out the gaps during CDM which results to agencies to pursue their own interests rather than the goals and interests of the collaborative arrangements and how roles and responsibilities during CDM are shared among the participating agencies.

Human Dynamics are interactional patterns between individuals participating in a collaborative arrangement, they occur at all levels of collaboration and are relational in nature. According to Fodor, Alina, Iulian & Petru (2018) these relational dynamics are key in maintaining and sustaining collaborations. This implies that there should be proper understanding of how individuals during CDM interact and how such interaction influences CDM effectiveness. HD includes communication, trust, interaction of individual personalities, past experiences, power asymmetries as well as individual perception of others and their attitudes towards the collaboration process.

Stakeholders' attitude towards collaboration process and individual perception of others during CDM determines how individuals will share resources during CDM and the level of trust individuals will place on others. According to Halvorsen, Almklor & Gjosund (2017), stakeholders' inconsistent attitude towards the CDM process is a key HD that influences the effectiveness of collaborations. Despite Halvorsen et al., (2017) noting inconsistent attitude to be key in influencing success of interagency collaborations during disaster management, how the incoherence in attitudes by the stakeholders can be mitigated was not addressed and the reason for such was also not given. Therefore, this

study sought to examine how individuals perceive others during CDM in NCC, Kenya, and if there are incoherence in attitudes towards CDM in NCC Kenya and how such influences CDM in NCC, Kenya.

PD are practical dynamics relevant to the collaboration process itself and they greatly determine outcome of collaboration process by influencing how collaboration arrangements are managed, how decisions during CDM are made, how problems are defined and common objectives arrived at during CDM. PD include capacity of agencies to collaborate, relationship building, leadership and coordination, shared purpose between agencies, agency representation, guidelines on roles and responsibilities, past experience and understanding in the area of collaboration among others. PD during CDM presents problem solving challenges.

A study in the USA after the failed collaborative response to Hurricane Katrina by Moynihan (2015) established that OD, specifically agency goals, agency structures, agency mandates and missions influenced the collaborative response arrangement. For instance, in New Orleans, NGOs and volunteers goals, missions and priorities were to rebuild homes for the affected communities while the city and state officials goals and priorities were to consider redevelopment plans including not to rebuild in some areas. These differences in goals and priorities from the participating agencies resulted in to conflicts which greatly influenced the recovery process negatively where agencies resulted to pursuing their individual interests at the expense of the collaborative goals. This implies that there is need for agencies participating in CDM arrangements to align their goals and missions so as to avoid such conflicts.

The study by Moynihan (2015) only noted that the differences in agency goals and priorities led to conflicts which negatively affected the collaborative process, Therefore the study sought to find out whether there are opportunities for innovation as a result of differences in agencies goals, missions and priorities during CDM and how such conflicts as a result of the differences in organizational goals, interests and priorities can be mitigated. Kapucu and Garayev (2011) in their study on decision making in emergency and disaster management following failure in collaboration response to Hurricane Rita in the USA observed that the collaborative response was characterized by distributive decision making where the participating agencies during the collaborative response were making decisions on their own without proper consensus.

This distributive decision making by the participating agencies during CDM arrangements results to lack of common understanding to the problem at hand which results to delayed response. Therefore, there is need for agencies participating in collaborative disaster management process to ensure that they jointly make decisions so as to avoid lack of common understanding to problems. Kapucu and Garayev (2011) in their study did not look at what caused agencies to make distributive decisions, therefore the study sought to investigate causes of distributive decision making during collaborative processes and explore the possible mitigation measures that can ensure agencies jointly make decisions.

Concerning relationships, the study by Kapucu and Garayev (2011) noted the importance of having interagency relationship during disasters and also in routine times. This according to the study creates an opportunity for agencies to establish shared mental

picture and also helps to eradicate discrepancies as a result of differences in values and organizational goals. However, the type of relationships, how such interagency relationships are formed and sustained to ensure they help in establishing and eradicating discrepancies was not provided for by the study. For this reason, this study sought to examine how IA relationships are formed during disasters and even routine times, what type of IA relationships should be formed during disasters and routine times

A study by Douglas & Schiffelers (2021) in Netherlands to identify patterns that shape collaborative performance noted decision making and problem definition as key determinants of collaborative success. However, the study failed to provide for ways of ensuring that agencies make decisions and define problems collaboratively. Also, the study only noted decision making and problem definition as key to success of collaborative process, but how they influence CDM was not provided for by the study. Therefore, this study sought to investigate the influence of decision making and problem definition on effectiveness of CDM.

Curnin and O'Hara (2019) in their study on Nonprofit and public sector interagency collaboration (IAC) conducted in Tasmania Australia after the 2016 floods noted clarity in roles and responsibility amongst participants involved in recovery operation as vital to ensuring success of IAC. Lack of role clarity results to conflicts, confusion on who is to do what during collaborations, this leads to lack of coordination and delayed response sometimes escalating the situation at hand. However, how lack of role clarity and problem definition influenced the IAC was not addressed by the study.

This implies that there is need to have clear understanding of how roles and responsibilities amongst participating agencies in CDM are properly defined and the criteria for allocating various duties well understood. This will go towards minimizing confusion bearing in mind that time is of essence while responding to disasters. Even though the study by Curnin and O'Hara noted role clarity as key to ensuring success of IAC, what causes agencies in a CDM arrangement to fail to define responsibilities was not explained, the criteria for defining roles and responsibilities either was not provided for. Therefore, this study sought to examine the criteria various disaster management agencies uses to define and allocate roles and responsibilities during interagency collaboration operations in disaster management in NCC, Kenya.

A study carried out in Sweden on professionals' perception on IAC by Olena (2015) concluded that human dynamics, specifically trust, information sharing, relationship, mutual understanding, communication were the main factors seen to influence effectiveness of IAC in service delivery. However, the direction of the influence of the dynamics was not addressed by the study, that is, how specifically each of the dynamics influences IAC was not explained. Also, how to attain trust, ensure there is communication between participating agencies, ensure information sharing and establish and maintain mutual relationships for collaborations was not addressed by Olena (2015).

For that reason, this study sought to examine specifically the influence of the dynamics on IAC and how to various dynamics are attained to ensure success of CDM. De Sisto and Handmer (2020) carried out a study on communication as key to effective IAC within

the bushfire investigation network in Italy and Australia. Findings of their study indicated that knowledge sharing between agencies was lacking and as a result impacted negatively to the success of collaborative bushfire investigations. Even though the study noted lack of knowledge sharing during IAC to impact negatively on the success of IAC, the study didn't explain what causes lack of knowledge sharing amongst agencies during IAC. Also, the mitigation measures to ensure that agencies participating in collaborative disaster management share knowledge were not provided for, yet sharing knowledge is critical during collaborative disaster response. Therefore, this study sought to investigate what causes agencies during CDM not to share knowledge and what should be done to encourage sharing of knowledge by agencies.

Another study conducted in Pakistan by Khosa in 2013 after the 2010 Pakistan floods which according to NDMA and UN (2011) was the worst disaster in the history of the country in that it affected over 78 districts out of its total of 141 districts and affected over 20 million people, found that strong leadership influenced the success of collaborative arrangements. Strong leadership was noted by the study to have influenced the success of collaborative arrangements, however, the study failed to provide the attributes that makes up strong leadership. What exactly the strong leadership contributed towards the success of the collaborative arrangement either was not explained by the study. Hence need for the study to look into the attributes that collaborative leaders should possess and how such attributes contribute towards success of CDM.

Further, the study by Khosa (2013) noted existence of formalized plans to have influenced greatly the success of collaborative arrangements by enabling quick and effective

management of appropriate funds and quick decision making. Prior working among the responding agencies and existence of friendly relations also influenced the success of the collaborative response. Despite the study by Khosa noting formalized plans and prior working relations between agencies involved in the collaborative arrangements to have played a role to the success of the IAC. It is important to note that disaster situations may call for response from disaster agencies which do not have existing formalized plans or even which have not worked together before. In most cases depending on the magnitude of the disaster, agencies respond to disaster irrespective of whether they have formalized plans or not. Therefore, this study sought to investigate the influence of informal working plans and lack of prior experience in working together on the effectiveness of IAC.

The Westgate Mall attack on 21st September 2013 was Kenyas' worst attack since the 1998 USA embassy bombing by Al-Qaeda. According to McComell (2015), the attack left 67 people dead and 175 were reported wounded. The response to the attack triggered many questions and concerns about Kenya's security community and first responders' ability to collaboratively manage disaster (Murpy and Dayle, 2013). Lack of communication between the responding agencies influenced to a greater extend the operations, where according to NYPD (2013) and McConnell &Tristan (2015) lack of communication between the participating agencies led to delayed and uncoordinated response to the attack. This implies that communication during collaborative response to disasters is vital to achieve results as it ensures that different agencies participating are able to share information and also set common objectives.

1.2 Statement of the Problem

The increasing frequency and severity with which disasters are occurring globally is a security concern that has led to increasing development to build and maintain collaborative mechanisms to improve disaster response and management. The rationale being that no single agency has the capabilities to effectively manage disasters and therefore need to embrace multiple disaster management agencies from different backgrounds to work together to achieve a common goal on the basis of collective responsibility and mutual interests. Despite the increase in the development of collaborative disaster management approaches and also benefits of collaboration being known, various studies and practitioners of CDM have noted that multi–organizational collaborative process is highly dynamic and complex as well as its outcome are uncertain, thereby difficult to achieve (Tang et al., 2021).

The complexities in achieving CDM are brought about by diversity in competences, knowledge, skills, attitudes and procedures of the various disaster management agencies which have different interests and goals. These diversities present human, practical and organizational dynamics which influences the effectiveness of CDM, hence the need to understand how the dynamics interact and influence interagency collaboration during disaster management. Research on how the various interagency operational dynamics interact and influence collaborative disaster management is however scanty, where previous studies in collaboration have looked at the concept of collaborations in general emphasizing on benefits of collaboration.

There are few studies which have looked at how the various interagency dynamics interact and influence CDM. Therefore, there is need to investigate the impact of the various dynamics on the outcomes of the collaborative processes since prior research in collaboration has given little basis for understanding collaboration in the context of interagency operational dynamics and their influence on CDM. Examining how the different interagency dynamics influences collaborative disaster management in Nairobi City County is key in understanding CDM networks and can help to achieve and sustain successful interagency collaborations in the management of disasters.

The existence of limited information regarding the role, interaction and influence of various IA dynamics on CDM in Nairobi is there despite evaluations of IA collaboration in the management of disasters showing that CDM is a function of interaction between various IA operational dynamics, which include process, organizational and human dynamics. The difficulties in achieving effective collaborations in disaster management highlight the need for CDM literature to dig deeper into how specifically the human, organizational and process dynamics interact, evolve and influences collaborations. This is because there are few scholars who have attempted to empirically capture or theorize the dynamism inherent to CDM in Nairobi City County Kenya. Greater understanding and insights of the influence of the dynamics will be essential to understanding opportunities and limitations of collaborations, therefore presenting opportunities for improving and achieving effective collaborations and also important theoretical implications.

The lack of understanding on interaction and influence of IA dynamics on CDM is the reason why the study sought to examine critically how IA dynamics specifically organizational, human and process dynamics influenced CDM in NCC, Kenya with a view to improve and achieve effectiveness in collaborative approaches in disaster management.

1.3 Objectives of the Study

The purpose of the study was to analyze the interagency operational dynamics influence on collaborative disaster management within Nairobi City County, Kenya.

1.3.1 Specific Objectives

The specific objectives of the study were to:

i.) Assess the influence of organizational dynamics on the performance of collaborative disaster management in Nairobi City County, Kenya.

ii.) Examine human dynamics influence on the implementation of collaborative disaster management in Nairobi City County, Kenya.

iii.) Evaluate the influence of process dynamics on the effectiveness of collaborative disaster management in Nairobi City County, Kenya.

1.4 Research Questions

The study sought to answer the following research questions.

1) How do organizational dynamics influence performance of collaborative disaster management within Nairobi City County, Kenya?

2) What is the influence of human dynamics in the implementation of collaborative disaster management in Nairobi City County, Kenya?
3) What is the influence of processes dynamics on the effectiveness of collaborative disaster management in Nairobi City County, Kenya?

1.5 Significance of the Study

Despite increase in the development of collaborative disaster management tools to manage disasters, existing literature has shown that achieving successful collaborations in disaster management is difficulty. The difficulties are brought about by complexities in understanding how the various interagency operational dynamics interact and influence CDM process. Despite such difficulties, existing literature on CDM has widely looked into benefits of collaborations in disaster management which according to Takara (2018) are recognized. There is scanty research that has attempted to examine how interagency dynamics interacts and influence CDM. Therefore, there is need to carry out a study which will examine how the three dynamics namely organizational, human and process interact during CDM and how they influence CDM. This is because previous collaborative responses to disasters in the country have not been successful despite the benefits being known. Having an understanding of how the various dynamics interacts and influence CDM helps in improving the effectiveness of CDM.

The study findings will be of significance and well-timed given that there is a global security concern as a result of the increasing frequency and severity of both human induced and natural hazards causing disasters worldwide, yet there are still challenges in embracing and achieving effective collaborations in DM. The CDM according to

previous studies is an appropriate strategy for managing disasters due to their complexities and resource demands that cannot be made by one organization. The findings of the study will be of value to researchers, academicians, disaster management agencies both national and international, and policy makers since it will create adequate understanding of how different IAOD influences CDM, understanding dynamics which are inherent in collaborative structures is valuable for conceptualizing collaboration.

Findings of the study will be of value to both state and non-state disaster management agencies in recognizing the kind of actions and strategies required to enhance their collaborative capacities for effective collaborations while maintaining their autonomies. To policy makers, the findings will contribute to improving their understanding of the influence of IA dynamics on CDM, hence help in informing decisions towards improving disaster policies and plans which goes a long way towards improving IAC in management of disasters. To researchers, academicians and students, the study findings are going to invoke them to do further research as well as contribute to the theory on IAC and help practitioners in providing principles to guide disaster management agencies in implementing more effective collaboration in management of disasters.

1.6 Scope of the Study

This study looked at interagency operational dynamics that influences how disaster management agencies in NCC, Kenya collaborates during management of disasters, where both cross-sectional survey and phenomenological research design were employed to enable investigations into the study subject. The study's target population constituted members of the disciplined services including the National Police Service (NPS), The

KDF-Disaster Response Brigade (DRB), and National Youth Service (NYS), staffs from NCC Fire and Rescue Services (NCCFRS), Kenya Red Cross Society (KRCS), national disaster coordination agencies including NDMU and NDOC. NCC was a good choice for the study because it had in the past experienced some of the most devastating disasters in the country. Also being the capital city of Kenya, all the main disaster management agencies headquarters are based in the County hence it experiences interaction of many disaster management agencies in the management of disaster events.

1.7 Limitations and Delimitation of the Study

One of the principal limitations of this study was the application of study the results to some disaster scenarios like security operations, since the study looked at collaborations in management of general disasters. Also, by choosing Nairobi City County as the study site and which has all the disaster management agencies (DMAs) interacting in the management of disasters, this may limit the applications of the results in other remote counties with very fewer agencies interacting in management of disasters. Another limitation was theoretical limitations where the study was directed by RDT, SCT and ICAT, aspects which the three theories do not cover may not have been addressed.

Methodologically, the study adopted the mixed method approach but was biased towards quantitative which the researcher realized could not give in depth understanding of key indicators of the dynamics, even though qualitative data was collected to corroborate the findings. Existence of few studies investigating how IAOD interact during collaborative disaster management and their influence on collaboration outcomes was also another limitation, the researcher therefore reviewed broader collaborations literature to gain

insights on how various interagency dynamics interact and influences collaborations outcomes.

The study was delimited to exploring how different operational dynamics influence collaborations between DMAs in the management of disasters only, hence the study did not cover other aspects of national security management. In the study, only DMA's in NCC were covered. Despite these limitations, the study achieved its objectives.

CHAPTER TWO

LITERATURE REVIEW

This chapter reviews literature and is presented into two sections. The first section covers literature review in relation to the three specific objectives of the study while the second part outlines theoretical framework applicable to the research. The chapter also reviews three theories adopted to provide sound theoretical foundation for the study, these theories include Resource Dependence Theory (RDT), Social Capital Theory (SCT) and the Institutional Collective Action Theory (ICAT). Conceptual framework that anchored the study is also presented in this chapter.

2.1 Empirical Literature Review

2.1.1 Organizational Dynamics and Collaborative Disaster Management

Organizational cultures according to Schein (2010) refers to an organization's tacit assumptions, espoused values, and artifacts, where artifacts are described as the visible items such as languages, behaviours, and dress while espoused values describes statements that are written in form of mission and philosophy of an organizations. Such statements are also found in internal communication, mission statements, and practice literature. Tacit assumptions are the values guiding those statements. Organizational culture serves as a tool of social cohesion (Schein, 2010) and is heavily influenced by ideologies and policies.

To Schneider, Enhart and Maley (2013), organizational culture includes those norms that members of an organization experience and describe as their work settings, it is important to note that the behaviours of the members in the organization are shaped by these norms.

Simoneaux & Stroud (2014) concluded that the way members of an organization behave constitute their organizational culture, while according to Amadeo (2013) cultural diversity is when differences in race, ethnicity, language, nationality, religion and sexual orientation are represented within a community. The implication of this is that cultural diversity which is a key characteristic of collaborative processes influences the outcome of CDM by either resulting to unhealthy conflicts or even innovations which are useful during the collaborations.

A study by Petcha (2013) on the effect of organizational cultures on inter-organizational collaboration during crises response in the USA involving the police, fire department, Nonprofit organizations and private security companies noted organizational cultures to influence effectiveness of IAC during crisis response. Differences in organizational cultures of participating agencies during collaborations do not automatically result to disagreements. Where differences result to conflicts, this frustrates attainment of common goals, affects how members interact within the collaboration and impedes sharing of information among the participating agencies.

This implies that there is need for collaborating agencies to identify opportunities as a result of differences in organizational cultures to help in maximizing benefits of IAC. Also, ways of mitigating conflicts as result of conflicting agency cultures was not addressed by the study, therefore, this study sought to investigate ways through which such conflicts can be managed while maintaining cultural identity of the various agencies. A study by Guver and Motsching (2017) on effects of diversity in teams and workgroups in Australia found that there was no single commonly accepted effect of diversities in

organizational cultures on performance of teams and that members reactions in IA to diversities in organizational cultures vary and that no straight forward association between diversity and IA performance. Despite there being no straight forward relationship between diversities in organizational differences and IA team performance, the study noted that diversities in organizational cultures had negative impact on cohesion, communication, integration and potential to increase conflicts, all which influenced collaborations negatively. However, the study concluded by observing that organizational differences to a certain limit tends to improve decision making and problem-solving process through encouraging creativity and innovation.

Observations by Guver and Motsching (2017) on the effects of organizational diversities in cultures on effectiveness of CDM appears to be into twofold, where diversities in organizational cultures are seen to impact some aspects of IAC negatively and others positively. For instance, according to the study diversities in organizational cultures negatively impact on group cohesion, communication and has potential to cause conflicts. On the other hand, diversities in organizational cultures improve decision-making and problem solving by encouraging creativity and innovation. Therefore, there is need to examine the influence of organizational cultures in CDM in NCC, Kenya.

Fleming, McCarthy and Steelman (2015) in their study on conflict and collaboration in wildfire management in the USA comprising of Forest service, land management agencies, local agencies and federal representatives noted that diversities in organizational mission and goals were not inherently harmful or undesirable, however, the study noted that if not well managed, the diversities can result to tensions in the IAC.

This contradicted the findings of a study by Kapucu & Garayev (2013) on designing, managing and sustaining functionally collaborative emergency management networks which noted that differences in organizational goals, missions and mandates influences effectiveness of collaborative arrangements.

Even though Fleming, McCarthy and Steelman (2015) noted that diversities in organizational mission and goals are not inherently harmful as long as they are managed well, how such diversities in organizational goals and missions can be managed was not addressed by their study. For this reason, this study sought to examine how diversities in organizational goals and missions can be managed. In their study, Clampitt and Dekoch (2011) had noted differences in agency goals and missions to make communication during collaborations challenging. These contrasting views by different studies and scholars on the interaction of organizational goals and missions with other IAOD and the influence of their diversities on effectiveness of CDM led to this study to investigate how organizational goals and missions interacted with other dynamics of collaboration, and how differences in goals and missions of the various DMA influenced effectiveness of CDM in NCC, Kenya.

In noting that diversities in organizational goals and missions influence the effectiveness of collaborative arrangements negatively, Kapucu & Garayev (2013) did not provide for ways of mitigating the negative influence. Therefore, this study investigated whether there were such conflicts during CDM in NCC, Kenya and if they were present, how were such conflicts as a result of differences in organizational goals and missions mitigated to ensure effectiveness of CDM in NCC, Kenya.

An inductive case study of the Columbia space shuttle response effort by Beck and Plowman (2014) noted that differences in organizational goals, missions and structures were influencing the collaborative response negatively at the early stages of the response operations when there was no any authority figure or coordinative agency. The implication is that having an authority figure or a coordinating agency during collaborative disaster management is key to ensure success. However how such an authority figure or coordinating agencies are selected was not explained by the study, therefore there is need to investigate how collaborative coordinating agencies during CDM are selected amongst the various responding agencies

A Study by McLachin and Larson (2011) in Canada on barriers to IA collaboration in crises management involving various NGOs, Aid and advocacy groups, UN representatives, Canadian Military and private sector noted that compatibility in organizational structures, processes and procedures influence effectiveness of collaborative disaster arrangements positively. This is because it creates a sense of mutuality and symmetry between the partners involved, however, organizational structures, policies, procedures and processes of DMAs are in most cases not compatible. For instance, state agencies mainly the military and police uses top down structures characterized by organizational bureaucracy which are different from those of non state actors such as humanitarian aid agencies, international relief agencies and local NGOs who mainly have decentralized structures. Study by McLachin and Larson (2011) failed to take into account that collaborative disaster management environment is highly characterized by incompatible agency structures, processes and procedures. For this

reason, this study sought to examine whether differences in agency structures, procedures and polices influences CDM negatively and how such differences can be managed if they negatively influence effectiveness of CDM.

A study by Kozuch (2016) on factors for effective inter organizational collaboration in Poland observed that level of commitment and willingness to collaborate during collaboration arrangements by the participating agencies impacts on the outcome of the collaboration arrangements. High levels of commitment and willingness towards collaborative arrangements means participating agencies are ready to withstand any obstacle and share resources to ensure success of the CDM. According to the study, special arrangements and efforts by the participating agencies are required since there are potentially positive benefits of collaboration. However, the specific special arrangements which need to be put in place by the participating agencies were not articulated by the study, therefore this study examined the special arrangements required to increase agencies level of commitment during

A study conducted in Indonesia by Arai, Oktoriana, Maswad and Suharyani (2021) on mitigating power imbalances in collaborations found that the impact of power imbalances tends to undermine effectiveness of CDM. According to the study, powerful actors during collaborative arrangements have the tendency of controlling the process by modeling it to fit their interests being the dominant group. This dominance and control by powerful actors during collaborative process results to exclusion of less powerful actors, which affects key aspects of collaborations. For instance, if less powerful actors are excluded in decision making, this affects common understanding to problems, setting of common

objectives to be achieved by the arrangements, sharing of knowledge and information among the participating agencies.

The tendency by powerful agencies especially form state actors inhibits innovation by reducing crosspollination of ideas which affects the process negatively. Even though the study by Arai, Oktoriana, Maswad and Suharyani (2021) noted the dominance by powerful agencies in collaborative disaster management as a potential cause of conflicts, the study didn't provide for the mitigation measures of the problem. Hence this study sought to examine if such tendencies occur during collaborative arrangements in NCC, Kenya and explore the mitigation measures.

Another study in India by Prasanna (2018) on relationship between organizational culture and humanitarian collaborations indicated that congruence on organizational cultures resulted to better collaborations. The study didn't take into account that during disaster scenarios, there are very many responding organizations participating in collaborative arrangements local and international, governmental and nongovernmental. There are very few instances that similarity in organizational goals occurs amongst the responding agencies, also the study did not provide foe mitigation measures in case of lack of congruence on organizational cultures neither did it explained what happens whenever there is dissimilarity in organizational cultures. Therefore, there is need to investigate the influence on CDM effectiveness as a result of lack of congruence in organizational cultures, and if it affects CDM effectiveness negatively, what are the mitigation measures to ensures success of collaborative arrangements in disaster management.

A study by Altay and Labonte (2014) in Haiti noted that rigid organizational structures and cultural differences amongst participating agencies results to difficulties in information sharing, this made shared decision making and consensus on shared organizational goals extremely difficult. However, the study failed to provide for ways of mitigating the problem of lack of consensus or shared understanding to problems, hence need to examine if there are opportunities for maximizing effectiveness of CDM as a result of differences in organizational cultures. Also, to investigate how problems as a result of rigid organizational structures can be mitigated.

Study by Al-Jenaibi (2011) on the impacts of cultural diversities in organizational teams in United Arab Emirates (UAE) found that members belonging to different cultures usually have different ways of thinking and thus analyzes a matter at hand from a variety of perspectives. According to the study, the differences in experiences can be beneficial by providing the organization with a sound and vast knowledge base. The implication is that there are opportunities for ensuring success of CDM that comes with differences in organizational cultures, as such differences provides a rich knowledge base for the collaborative arrangement. However, how to overcome problems as a result of the cultural differences was not articulated for by the study, therefore, there is need to investigate how such problems can be mitigated.

Kristinsson, Candi & Saemundson (2016) in their study on the relationship between informational diversity and interorganizational performance found that diversity is positively related to not only idea generation, but also implementation of ideas. This

observation was shared by Naqvi, Ishtiaq, Kanwal, Butt & Nawaz (2013) who argued that diversity results to fast and high-quality solutions through complementary skills, better decision making, effective ideas and more information processing behaviours. The implication of these studies is that, participating agencies during collaborative processes should encourage informational diversity amongst themselves as it is beneficial to CDM. However, the studies did not look at the challenges that comes with informational diversity during CDM bearing in mind that DM is characterized by urgency especially response phase. Hence the need for a study to investigate whether there are problems with informational diversity during CDM in NCC, Kenya and how such can be mitigated

Another study by Martin (2014) on the effects of cultural diversities when working within teams noted that cultural diversities can have both positive and negative impacts, where the unfavorable impacts according to the study includes dysfunctional conflicts, difficulties in achieving harmony in the IA team settings while favourable impacts include strong knowledge base which is created by a variety of cultural experiences. The study concluded by noting that the effects of cultural diversities depend upon how well they are managed by the organizational leadership, where proper management and with good leadership, the positive impacts of organizational diversities can be enhanced while the negative effects of diversities in cultures be reduced leading to effectiveness in IAC.

The study by Martin (2014) noted that cultural diversities during CDM can have both positive and negative impacts to the effectiveness of CDM, where positive impacts are dependent upon organizational leadership and proper management. However, the study

did not articulate the attributes required for collaborative organizational leaders and what constitute proper management. The study also noted the unfavourable consequences as a result of cultural diversity, however, how to mitigate such unfavourable consequences was not articulated by the study. Therefore, this study sought to examine the attributes that makes a good collaborative organizational leaders and to investigate how the unfavorable consequences as a result of cultural diversity can be mitigated bearing in mind that CDM is highly characterized by cultural diversity.

According to Galbraith (2002) agencies are oriented towards achieving their own goals and objectives according to their interests and responsibilities. This goal directed behaviour according to Galbraith (2002) affects the common problem space between the collaborating actors, thus affecting other organization sometimes dramatically, which results to under performance of collaborative arrangements. In noting that individual organization goal directed behaviours affects how collaboration networks define and understand common problem space, Galbraith (2002) didn't provide for ways in which such goal directed behaviours can be minimized or the conflicts which they bring can be solved, hence this study sought to and proposed how such goal directed behaviours can be minimized in a CDM arrangements.

It is also important to note that there exist different and contrasting views on the influence of differences in organizational goals, missions, mandates and philosophies on performance of CDM arrangements. For instance, Rodriquez, Petrez and Pardodei (2003) noted that when goals and mandates of organizations differ, they affect the effectiveness of the collaborative arrangements negatively by increasing difficulties in how such

agencies interact. Guimera et al (2005) on the other hand argued that differences in goals, mandates and philosophies emanating from various agencies participating in a CDM are essential in that they offer valuable experience by exposing agencies to diverse methods of doing things, values and cultures, which eventually enlarge their skills of collaborating.

This contrasting view implies that there need to investigate the influence of differences in organizational goals, mandates, policies and missions of the different DMA in NCC, Kenya. In noting the negative impact of differences in organizational goals, structures and missions, the study by Rodriquez et al., (2003) did not articulate ways of mitigating such negative impacts, hence this study sought to investigate how the negative impacts of differences in organizational goals, missions and mandates can be mitigated.

The study by Beck and Plowman (2014) concluded that such diversities influence collaborations negatively, while Flemming et al (2015) argued that the differences are not inherently undesirable to the success of IAC in disaster management. As a result of contrasting views, this study sought to assess the influence of differences in organizational goals, missions, and mandates on the performance of collaborative disaster management in NCC, Kenya.

The bureaucratic nature of security agencies for instance may hamper efforts to establish working relationships across agency boundaries further affecting interagency efforts. How to solve the differences emanating from diverse agency structures is what McGuire & Silvia (2010) didn't articulate, hence this study sought to and proposed what can be done to ensure that collaborative efforts are successful and effective in managing disasters

despite the diversities in agency structures. During collaborative response to the 9/11 World Trade Center attacks in the USA, rigid hierarchy and inflexible agency structures were noted by Comfort &Kapucu (2006) to have impendent team work, where they noted that rigid agency structures affect adaptability of agencies

According to Hocevar, Jansen and Thomas (2011), structural flexibility was identified as a dimension of interagency collaboration capacity and a factor that allows collaborating partners to adapt as requirement changes. It also enables partners during collaboration to demonstrate willingness to adjust procedures which further facilitate CDM by allowing partners to respond to requirements of other organizations within the collaboration. Even though Hocevar et al (2011) talked of structural flexibility as a factor and dimension of interagency collaboration capacity, what enables agencies to have flexible structures was not explained, therefore the study sought to establish factors that enable organizations to have flexible or inflexible structures.

Agency policies and procedures just like structures also differ from agency to agency and can impede development of collaboration. For instance, the policy of security agencies on personnel transfers and deployment where the officers are from time to time expected to work in different places across the country. This may adversely affect collaborative partnerships and continuity in case of a situation where officers with past experience in collaborative capacity are replaced with officers without past experience in collaborative work. Since differences in organizational polices has been noted to impede collaborative efforts in management of disasters, it was of importance for the study to look into the

ways through which such differences in organizational policies can be managed to ensure effective collaborations in the management of disasters.

Organizational resistance and lack of commitment by agencies were noted to hinder CDM approaches, where agencies fear that by attempting some form of collaborations they are going to neglect their prime purposes and also reduce their resources. Corbin and Mittlemark (2008) noted that collaborative efforts are in danger when one agency or more partners consider their investment of time, effort and money to be wasted, since this result into antagony, which is the opposite of synergy. When this occurs, collaboration may fall in danger of crumbling before aims are achieved. This according to Huxham and Vangen (2004) was noted to be among factors that causes many collaboration arrangements in disaster management to stop functioning immediately they have been launched and before they have achieved their aims. Since lack of commitment by participating agencies was noted to influence negatively CDM effectiveness, this study investigated how such can be mitigated to ensure success of CDM in NCC, Kenya.

Kwibisia and Majzoub (2017) noted during the initial phases of collaboration, participants are actually committed and contribute truly towards collaboration, but as time goes by, maintaining the drive for continued collaboration becomes a challenge that affects the effectiveness of collaboration, they attribute this to lack of commitment. According to Jacobson & Choi (2008), commitment is an important factor for constructing collaboration success. While noting that agencies initially are committed towards collaboration and later on become less committed, Kwibisia& Majzoub did not explain the reason as to why agencies tend to behave like that, also Jacobson and Choi

only noted commitment to be an important factor for constructing success of collaborations, but they did not explain how agencies can achieve high levels of commitment and maintain that commitment drive all throughout the collaboration process.

A study by M'muthuiba (2013) on sharing of information among humanitarian organization in Kenya showed that organizational cultures were instrumental in determining sharing of information during collaborations. A view shared by Egli (2011) and Vuori & Okkonen (2012) who observed the crucial need of understanding organizational cultures since they affect the willingness and attitude of organizations to share information during collaborations. Observations by M'muthuiba (2013) and Vuori& Okkonen (2012) implied the need for the study to examine whether organizational cultures determine information sharing during CDM in NCC, Kenya.

On agency autonomy, Thomson & Perry (2006) noted that partners in a collaboration share a dual identity and that maintaining the dual identity is critical for collaboration success since there is always the challenge of tension between self-interest and collective interest among partners (Thomson & Perry, 2006). Maintaining dual identity helps minimizing tensions between self-interest and collective interest, however how to maintain such dual identity was not explained. Hence the study sought to explore ways through which individuals participating in collaborative processes during DM can maintain dual identity so as to help minimize

Rose (2011) further examined the difficulties that usually come to fore whenever contributions of members of a team are devalued or when they are made to perform tasks that are outside their area of expertise. However, in exploring the dilemmas, Rose (2011) didn't explain exactly what these dilemmas were and their influence on CDM. According to Darlington et al (2005), conflicting expectations among collaborating agencies can be avoided when opportunities and limitations resulting from legislative contexts and policies regarding the specific tasks are properly understood. However collaborative processes in DM in NCC have been for long without such a policy to guide agencies during collaborations. Therefore, this study is timely in that the findings of the study will influence the development of necessary policy and legislations to guide collaborations in service delivery.

2.1.2 Human Dynamics and Collaborative Disaster Management

The various indicators of human dynamics interact and influence effectiveness of CDM differently, where trust was noted by Berasategi, Arrana & Castellano (2011) to interact highly with other dynamics to influence effectiveness of interorganizational collaboration. According to Grant & Hoover (2002), trust comes from a history of joint collaborations in exercises and management of previous disasters. However, not all forms of trust are as a result of past history of collaborations. This is because there are situations where DMA meet for the first time and trust each other. The view by Grant & Hoover (2002) was supported by Cook (2009) who perceived trust as a lubricating ingredient in any relationship and it take time to be built among entities.

The implication of this observation is that collaboration agencies should understand that they all have a role to play to built trust. To DeOlivera & Rabechini (2019), trust serves as glue where legal rules are absence, this implied that a trustworthy environment during CDM is necessary than even binding agencies through rules. Trust according to Lewickis (2014) is confident positive expectations regarding another person's conduct According to Strahorn, Gajendran & Brewer (2015) trust can be inherent to a relationship due to personal features or learned by interpersonal contacts. Trust as result of personal features manifests in personal characteristics of individuals who pose friendly and trustworthy attitude towards each other. According to observations by Strahorn et al (2015), trust that develops as a result of contact between individuals, also referred to as learned trust is more conducive for collaborations since it is built up as a result of proven record of positive outcomes.

Even though Strahorn et al (2015) noted learned trust to be conducive during collaborations, it is important to note that there is need for both forms of trust during collaborations. For instance, in cases where agencies participating in a collaborative disaster management arrangement have not had previous contacts, trust is going to be dependent upon personal characteristics of participating individuals. Further Strahorn et al (2015) noted that for trust to develop during collaborations, initial trustworthy attitude should be supported by positive experiences, however, the study didn't take into account that negative experiences can also be basis for future trust during corroborations. According to a study by Opolski, Modzelewski & Kocia (2019) on interorganizational trust and effectiveness perception in a collaborative social welfare service delivery

network in Poland involving local government institutions and nonprofit organizations, trust was noted to be correlated with perceived IAC effectiveness. However, the study noted that there was no basis to state that trust is correlated with outcome perception when considering most difficult and complex scenarios. This implied the need to investigate the influence of trust on effectiveness of CDM in NCC, Kenya, since the study by Opolski, Modzelewski & Kocia (2019) didn't conclusively show the correlation between trust and effectiveness of complex and difficult scenarios like disasters.

A study by Gether-Talyor, Grayer, Kempf & O'Leary (2019) in USA on trust during collaborations noted that trust in collaboration is both an element of success and an outcome of interest in collaborations. This implies that CDM effectiveness is dependent upon trust amongst participating agencies during the collaborative arrangements and at the same time collaborations between agencies can result to trust. According to Gether-Talyor et al (2019) individual perceptions as a result of one's assessment, experience and dispositions in which one believes in and willing to act on constitute trust, and it includes reliance on principles, rules, norms and procedures that articulate collective expectations.

This implies that the trust individuals have on others during interorganizational collaborations is partly dependent upon their organizational rules, norms, principles and procedures. Trust being a human dynamic in this case is seen to interact with organizational dynamics, where organizational norms, procedures, rules and principles contribute to a great extent to determining individuals trust. Hence the study examined whether norms, principles, procedures and rules held by DMA in NCC, Kenya influenced trust held by individuals during CDM.

According to an assessment study of the USA Department of Homelands Security collaborative model in securing the country's resources from natural and human induced dangers and partners by Koski (2013) established that trust between Department Homeland Security and their partners was a key component of success of the collaborative model. However how trust between DHS and partners was established and maintained was not articulated in the assessment, hence the study sought to examine how interorganizational trust amongst collaborating agencies can be established and maintained to achieve success during collaborations in NCC, Kenya.

Ysa, Sierra and Esteve (2014) in their study on urban revitalization networks established that successful outcomes were influenced by network leadership and management strategies, which were influencing the level of trust. This implies that trust as a human dynamic is dependent upon strategies collaborative leaders apply during CDM, clearly demonstrating interaction between process dynamics and human dynamics. However, during their investigations Ysa, Sierra and Esteve (2014) didn't articulate on the specific strategies which collaborative leaders are supposed to apply so as to influence trust during collaborative disaster management processes. Hence the study examined strategies employed by collaborative disaster management leaders to influence trust in NCC, Kenya.

The study further concluded that during complex contexts like collaborative disaster management scenarios, leaders have a role to play to influence trust, however the leaders influence was noted to be dependent upon the choice of strategy they use. A study by

Vasavada (2013) in Gujarat India noted high levels of trust as crucial mechanisms for effective networked response for DM, hover the study didn't provide for ways of attaining such high levels of trust amongst DMA. In another study by Park and Lee (2014) in South Korea on knowledge sharing in information systems development projects, trust was noted to influence collaborative culture by maintaining strong impacts on knowledge and information sharing. Studies by both Vasavada (2013) and Park & Lee (2014) noted high levels of trust as required during IAC since it influences collaboration culture by impacting on collaborations aspects such as information and knowledge sharing.

Despite the studies noting high levels of trust as key to achieving successful CDM, they failed to articulate how such high levels of trust can be achieved during collaborations, hence the need by this study to explore ways of achieving high levels of trust amongst DMA in NCC, Kenya. Trust amongst all other dynamics in collaborations work according to a study by Pishdad-Bozorgi and Beliveau (2016) was noted to be the cornerstone of collaborations. The study observed that trust influences collaborative work highly by creating an enabling environment for collaborations, where lack of it hinder how DMAs collaborate. This implied the need for this study to investigate the influence of trust during CDM in NCC, Kenya and explore ways through which high levels of trust amongst participating agencies can be achieved during CDM in NCC, Kenya.

Understanding each other's goals, values and perspectives was noted by Green et al (2008) to play a very important role during collaborations, where failure can fuel mistrust among the agencies, in turn inhibiting their collaborative agenda. This clearly demonstrates interaction of IAOD where HD are seen to be dependent upon PD

specifically agencies goals, values and perspectives which according to the study are key for agencies participating in collaborative process. According to Green et al (2008) attaining successful IAC can be assured when mutual responsibility and high trust levels are established. However, how to attain mutual responsibility and high levels of trust amongst agencies for successful IAC was not articulated by the study, hence need for exploring ways by this study of achieving mutual responsibility and high levels of trust.

A study conducted in Poland by Kucharska (2017) on the relationship between trust and collaborations indicated that there was a strong correlation between trust and collaborations. The study by Kucharska (2017) indicated a correlation between trust and collaborations, however, the study by didn't indicate specifically how lack or presence of trusted relationships during collaborative process influence on effectiveness of collaborations CDM. Hence, this study investigated how presence and lack of trust during influences CDM effectiveness in NCC, Kenya.

In understanding building of trust during collaborative processes, Emerson and Nabatchi (2015) emphasized on structure or relationships between individuals, groups or organizations. This clearly demonstrate the interaction of PD, OD and HD, where trust which is a human dynamic is being influenced partly by structure of the organizations involved in the collaboration and at the same time by the relationships between individuals involved in the collaboration. This implied that to achieve successful CDM in NCC, Kenya, there is need to understand how the three IAOD interact to influence the effectiveness of CDM in NCC, Kenya.

According to a study in USA by Kean and Hamilton (2004), they observed that during response to 9/11 attacks, police and fire department were noted to have had difficulties in sharing information, a factor that they attribute to failures in how the collaboration efforts responded. While noting difficulties in sharing information during the collaborative response to the 9/11, Kean and Hamilton (2004) didn't articulate what contributed to the lack of information sharing during the collaborative response. This study examined how different DMA shared information during CDM in NCC, Kenya to establish if there were difficulties in sharing of information, what caused such difficulties if they were there and also the mitigation measures.

While contributing on information sharing during collaborative processes, Ren et al (2018) concluded that there is little that has been done to study why agencies find it difficult to share information. Hence this study investigated whether DMA in NCC found it difficult to share information and if there were difficulties, the reason as to why the agencies found it difficult to share information during CDM. Salas, Shutter, Mayer & Lazzara (2015) in their study on understanding and improving teamwork in organizations observed that for teams to achieve effective results during collaborations, communication is crucial.

Even though Salas, Shutter, Mayer & Lazzara (2015) noted communication to be crucial for teams to achieve results, the aspects of collaboration that are affected by communication so as to influence effectiveness during collaborative arrangements were not explained. Therefore, this study explored aspects of interagency collaborations that

are impacted by communication, so as to result to interagency teams achieving effective results.

The same view on communication was shared by a study conducted by McMaster & Baber (2012) in the United Kingdom (UK) on multi-agency operations. In their study, McMaster & Baber observed the need for effective communication in creating a common picture between participating team members, which in turn reduces conflicts and translate to better results. Effective communication was noted by the study to create common metal picture by parting agencies during collaborations. While noting the need for effective communication, the studies did not provide for ways of achieving effective communication during CDM. Hence this study investigated strategies employed by DMA in NCC, Kenya to achieve effective communication which was noted to be crucial in achieving effectiveness during CDM.

According to Parker, Rolins, Murray, Chafey & Canesa (2017) perceptions and individual attitudes are recognized as paramount to achieving effective interagency collaboration. Having bad attitudes by individuals towards other participants and the collaborative process, wrong perceptions of others and their organizations during collaborations engender integration of participants during collaborative process (Dimitrakopoulos, Jones, Iosifides, Florokapi, Lasda, Paliouras & Evangelinus, 2010). According to Htun, Mizoue &Yoshinda (2012) perceptions are people's beliefs that derive from their experiences and interactions with others or an activity.

Perception and attitudes according to Dimitrakopoulos et al (2010) are influenced by the level of trust and terms imposed during the establishment of the collaboration process, levels of awareness and personal attributes of individuals. Terms imposed during onset of collaborative disaster management are mainly related to organizational policies, rules, structures and processes, clearly demonstrating interaction of OD and PD where, PD appears to influence HD. That is organizational structures, rules and processes set terms of engagements between agencies during collaborative processes, which in turn according to Dimitrakopoulos et al (2010) influence perceptions of different stakeholders, this influences on the effectiveness of CDM.

Another study by Kabra and Ramesh (2015) in Northern India established that negative individual's perception of others during collaborative response to the severe flooding of 2013 impeded IAC between the participating agencies. It is important to note that study by Kabra and Ramesh (2015) looked at instances where individuals had perceived others negatively, yet it is not all the times individuals perceive others negatively or with suspicion, hence there is need to find out how individuals from various disaster management agencies involved in CDM in NCC, Kenya perceive others, and the kind of influence it has on the collaborative arrangements.

A study by Altay & Labonte (2014) in Haiti noted that difficulties in information sharing during collaborative disaster response as a result of rigid organizational structures impeded decision making. This negatively influenced the effectiveness of IAC response to the affected communities. This implied that organizational structures which constitute part of organizational dynamics played a key role in determining sharing of information

and decision making among participating agencies during the collaborative response. Despite Altay & Labonte in their study noting rigid organizational structures as influencing CDM negatively, the study did not articulate ways of mitigating challenges caused by rigid organizational structures. For this reason, this study explored ways through which difficulties as a result of rigidity in agency structures could be mitigated, since it was observed to hinder decision making and create difficulties in information sharing.

According to Shepherdson, Clancey, Lee and Crofts (2014) information access is a tool for sustaining and enhancing effective collaboration. This implied that for CDM to be effective in managing disasters, agencies participating in such collaborative arrangements must be ready to avail information to other participants. Even though Shepherdson et al (2014) noted information access as a tool for achieving sustainability during collaboration arrangements, aspects that impacted on availing of information by agencies during collaboration were not articulated by their study. Therefore, this study examined how DMA involved in CDM in NCC, Kenya availed information during IA operations and what aspects impacted on the provision of information from one agency to another.

According Alison, Power Van den & Waring (2015), lack of communication during collaborative arrangements was observed by their study to affect information sharing between agencies during collaborative response to disaster. This influenced effectiveness of collaborative response negatively, for insistence, if agencies do not share information during collaborations, this impedes shared decision making and common understanding to problems. Failing to have common understanding to problem or agencies not being

able to achieve shared decisions on problems during collaboration results to goal directed behaviours by agencies, competition by agencies, lack of coordination.

Goal directed behaviour is when each agency during the collaboration process pursues its own goals according to their interests, competition amongst participating agencies occurs when the various DMA during collaborations strives to outshine one another so that they can claim credit for work done. All this leads to delayed response or failure in such collaborations. Even though lack of communication was noted by Alison et al (2015) to affect information sharing during IAC, how to mitigate such scenarios during CDM was not articulated. Therefore, this study examined whether DMA during CDM in NCC, Kenya had problems in communicating to one another and if there were problems, what was the influence on the effectiveness of CDM. Lastly, the study explored the mitigation strategies for lack of communication during collaborations.

According to Hamilton (2010) communication is a fundamental element that influences collaboration outcomes and it begins before or at the time members come together whether in person or other mechanisms. Communication that begins before implies that there are prior relationships between such agencies or the DMA had interacted before and established some of engagements. Communication that occurs when members come together during CDM implies that such agencies or individuals are interacting for the first time or they had interacted before but did not establish relationships leading to continuing communication. While explaining how communication occurs, the study by Hamilton (2010) did not show which communication is more effective during CDM, either before or communication at the time of meeting. Therefore this study examined how various

DMA within NCC, Kenya established communication and which form of communication they deemed to be effective for collaborations.

According to Villa- Henninger (2015) collaboration is a social process where members build a group through communication while to Hardy, Lawrence & Grant (2005) communication help built and maintain group cohesiveness. Essentially, collaboration demands unhindered sharing of visions, outcomes, responsibilities, values, and knowledge as products of effective communication. The implies that for CDM to be effective, there must be interaction of the IAOD, for instance, products of effective communication for collaborations includes sharing of agencies visions, values and beliefs which constitutes OD and also sharing of responsibilities and shared understanding to problems which are PD. Lack of communication during collaborative disaster management especially response and recovery phases of DM worsens performance of such arrangements and exacerbates the potential for further loss of life and extends human suffering.

The United Nations Security Report of 2015 noted that there were local agencies in Garissa, Kenya who had information and intelligence that *Al-Shabaab* were planning to attack an educational institution within the county yet they did not share that information with other security agencies. Mwangi (2018) also noted that prior to the Westgate Mall attack agencies failed to share intelligence, a factor the study attributes to suspicion and distrust among and within the agencies responsible. The United Nations Security Report of 2015 noted lack of information sharing among agencies responsible, Mwangi (2018) noted the same and attributed it to suspicion and distrust among the agencies.

How such suspicion and what caused the distrust was not articulated by Mwangi (2018), for this reason, this study investigated whether there were problems in sharing information between DMA in NCC and if so, what caused such problems. The United Nations Security Committee (UNSC) report of 2015 further concluded that the delayed collaborative response to the Garissa University College attack in 2015 was as a result of inadequate communication. Inadequate communication during collaborative response to disasters results to complexity in decision-making process, lack of coordination between the responding agencies, this leads to slow response resulting to loss of lives.

According to a study by Dewulf and Elbers (2018) in Netherlands, power asymmetry during CDM was observed by the study to influence collaborative effectiveness by causing a wide range of undesirable consequences. The study indicated that as a result of power asymmetries, low-power actors in a collaborative process may be ignored, over-ruled or even excluded by dominant actors. The exclusion, ignoring and overruling of less powerful agencies by powerful agencies during CDM leads to lack of commitment, lack of knowledge and information sharing, lack of common understanding to problems. The resulting effect is failure in interorganizational collaboration.

The same observation was noted by Arai, Oktoriana, Maswadi, Suharyani& Inoue (2021) in their study in Indonesia where power asymmetry was observed to undermine effectiveness of collaborative processes where powerful actors represented by government tended to control the processes and thereby producing benefits for dominant groups and less empowered stakeholders ignored. Studies by Dewulf & Elbers (2018) and Arai et al (2021) noted power asymmetry as negatively influencing effectiveness of

collaborative processes, however, the studies did not articulate the mitigation measures for power imbalances during CDM. Therefore, the study investigated whether there existed power imbalances among DMA during CDM in NCC, Kenya. Also, mitigation measures for power imbalances were recommended for by the study.

According to Purdy (2012) failing to manage power asymmetries leads to failures in collaborative arrangements due to lack of synergy, trust, innovation and creativity in such collaborations. The exclusion of less powerful agencies from decision making tables by those agencies with greater resources as a result of power struggles impedes information sharing and results to decisions biased towards such powerful agencies. The observation by Purdy (2012) characterized the collaborative response to the Westgate mall attack where some responding agencies felt devalued by being replaced with other personnels from different agencies. There were claims by some agencies that, the process of replacement was not procedurally undertaken, for instance lack of handing over situation brief from the agencies impeded the success of the collaborative response according to the agencies replaced.

According to a study by Mwangi (2018), failures in collaborations among security agencies involved in such operation is due to power asymmetry and IA rivalry, where the study further noted that, the IA rivalry during the West gate mall attack in 2013 revealed that the country's security agencies pursued their agency specified interest that are aimed at maintaining supremacy over collaboration efforts. For instance, during the Garissa University attack, there were reports that it took a certain special response team very long hours to arrive at the scene by having them travel by road from Nairobi to Garissa instead

of them being flown there, yet time is a factor while responding to disasters especially terror attacks. This can be attributed to lack of coordination in collaborative disaster management in the country and also the rigid organizational structures, policies and procedures alongside agency rivalry and power asymmetry.

The slow and failed IA response to Westgate mall attack, Mpeketoni attack and Garissa university attacks according to Mwangi (2018) are as a result power asymmetry. According to Harris &Allen (2011), competing power relations among various agencies and team members top the list of regular sources of tension in collaborations work. Despite the acknowledgement that power relations are a source of tensions and a cause of failure in collaborative processes, study by Mwangi however did not articulate how such asymmetry can be mitigated. Therefore, this study investigated whether IA rivalry amongst DMA existed during CDM in NCC, Kenya, and recommended mitigation measures for IA rivalry and conflicts.

2.1.3 Process Dynamics and Collaborative Disaster Management

Process dynamics are interagency operational dynamics relevant to the collaboration process itself, also known as the practical dynamics (Tellesbo, 2012). According to Stapp (2003) the manner in which collaborative process is managed has ultimate bearing on the outcome of collaboration while according to Majchrzak, Jarvenpaa & Bagherzadeh (2015) Process Dynamics constitute mechanisms which facilitate interaction during collaboration. Process dynamics are considered by Patel, Pettit & Wilson (2012) to be the primary focus of the collaborative process. The implication of the observations by Majchrzak et al (2015) and Patel et al (2012) is that, understanding how PD interacts with

other IAODs and how the interaction influences CDM is key to achieving successful collaborations in DM. Process dynamics which this study considered to influence CDM and interact with other IAOD included collaboration capacity, relationship building, leadership and coordination. Others included, common understanding to problems during collaborations, agency representation, role clarity, past experience and understanding in the area of collaboration. Lack of understanding of these dynamics may make CDM almost unattainable.

According to Emerson & Nabatchi (2015) process dynamics help in initiating and sustaining collaboration process, for instance during disaster scenarios it is leadership that catalyzes the IA group to work together by convening stakeholders. Leadership as a process dynamic plays a very important role in initiating the collaborative process and ensuring its sustainability through mediating conflicts as a result of dereferences brought about by organizational and human dynamics (Emerson & Nabatchi, 2015). This led to (Newig, Derwort& Jager 2019) to conclude that having an understanding of how process dynamics influence collaboration results to sustaining healthy collaborations. Despite the critical role played by the process dynamics in sustaining collaborative process, Emerson & Nabatchi (2015) noted that there are few studies that have looked into how these dynamics interacts and evolve over time to influence collaborative process. Therefore, this study sought to evaluate the influence of the process dynamics in CDM in NCC Kenya.

According to Kozuch, Sienkiewicz, Małyjurek & Gansiniec (2018) relationship strength between and among participating agencies during a collaborative arrangement was noted

to be key in influencing effectiveness of collaborations. However, the study did not articulate the direction of influence on effectiveness of CDM, how to achieve such strong relationships between agencies during or for collaborations was not articulated either. Relationships in collaboration are defined by the way organizations and people are linked to one another as well as how the connections are valued and understood by the parties. According to Strikler (2010) relationship is a function of interests and behaviour and affects almost all other factors which influence IAC arrangements.

Typically, a relationship takes two dimensions, can be either informal or formal, where formal relations are formed through official engagements and structures of an organization while informal relationships can be explained as occurring outside the organizational structures (Cook, 2009).According to McGuire (2006) formal relationships between organizations participating in collaborations can be facilitated through boundary spanners, where such relationships between different organizations start by definition of responsibilities and roles that organizations and individuals play. Though McGuire (2006) talked of boundary spanners as facilitating formal relationships, what constitute the boundary spanners was not articulated and how to achieve them.

There also exists contradiction on the influence of the two dimensions of relationships on effectiveness of CDM. For instance, lack of formalized structures of engagement between agencies during collaborative response to the USA September 11, attacks was noted by Kapucu (2006) to have negatively influenced the response operations. This contradicts a study by Levy (2015) in USA on IAC in a large USA seaport which concluded that informal relationships were found to be more functional than formal ones.

These contrasting views on relationships influence on CDM led to this study to find out how agencies established formal relationships. Also, from the studies how each type of relationships affect collaboration was not well articulated, no conclusion on whether to adopt formal relationship or informal relation or have both during collaborations, hence the need by this study to look into what type of relationship is good for collaborations.

Relationships for collaborations either formal or informal can be formed during or prior the occurrence of a disaster. According to Quarantelli (2005), CDM is likely to experience loosely fixed organizational systems if relationships among the concerned individuals and organizations are not created before occurrence of the disasters. This was also supported by Martin, Nolte & Vitolo (2016) in their study which noted that during the collaborative response of Haiti 2010, pre-existing relationships led to formations of successful collaborations. Even though there is agreement that pre-established relationships influence CDM positively, how relationships that are formed during DM process by the various DMA influence effectiveness of CDM was not articulated by the studies, therefore, this study investigated the influence of relationships that are formed during DM. This is because CDM brings onboard many DMA which may have not interacted before.

An inductive case study of the Colombia space shuttle response effort by Beck and Plowman (2014) indicated lack of a coordinative authority and lack of previous experience as main influencing factors to the operation. The study noted that immediately the space shuttle broke down, different agencies were getting to the scene and carried out response activities with no central body coordinating the whole exercise, especially

during the early hours of the response. Agencies getting to the scene and carrying out response activities without a coordinating authority or organizations implied agency directed behaviors, high chances that there was lack of sharing knowledge and information amongst the responding agencies.

The study noted that, after arrival of a lead agency and interaction of the participating agencies, the collaborative response efforts were influenced positively. This implied that having a collaborative disaster management lead organization is key to achieving effectiveness in CDM. According to Koorula, Moon, Salles & Wickert (2019) a lead agency during CDM plays multiple roles in steering the actions of the various organizational actors within the complex network, where the lead agency acts as an organizer, facilitator and supplier of information in the network influencing on the effectiveness of the network. The leader of the lead agency which takes the role of being the collaboration coordinator should fulfill the role of facilitation instead of being a top-down leader. He/she should perform the tasks of mobilizing and uniting the agencies, organize necessary meetings, planning for every practical issue, and use appropriate communication channels to establish a common platform to enhance mutual understanding in the group.

Even though Koorula et al (2019) discussed the role of a lead agency during CDM, confusion arises when there is conflict between agencies present in a collaborative arrangement to which organization is going to be the lead agency, where the criterion is not set. For instance, in Kenya there are two national disaster coordinative agencies, the NDMU and the NDOC both of which plays important roles in management of disasters

in the country, how to identify a lead agency in CDM is not provided for given that there are many organizations during CDM.

This confusion as to which agency is to play the lead role was noted to result to conflict and lack of coordination during the Westgate mall attack in 2013 where the various responding security agencies did not have an agreement as to which security formation is to be the lead agency. This study therefore, investigated how CDM lead agencies within NCC, Kenya are selected and examined the influence of having more than one coordinating agency during CDM. Interagency Coordination is a key theme associated with PD which impacts on how CDM arrangements perform. Collaborative disaster management coordination means more than just providing information about what is happening, but that all stakeholders are informed about and allowed to participate in the collaborative process (Philips, 2005).According to Hawkins (2020) interorganizational coordination is the activities towards achieving a specific bundle of common goals of different organizations while Mutebi, Muhwezi, Ntayi& Munene (2020) coordination concerns relations, level of task decentralizations and dispersion of tasks to various agencies participating in a CDM arrangement.

Collaborative coordination of joint activities goes beyond traditional, intra-organizational, hierarchical mechanisms and is based on organizational and relational mechanisms (Christensen, Laegreid, M &Laegreid, P, 2019). This implied interaction of IAOD where CDM coordination according to Christensen et al (2019) is dependent upon OD and HD. The importance of coordination results from the growing complexity in the implementation of collaborative tasks as well as the need to collaborate in networks

created by units from various sectors (Molenveld, Verhoest, Voest& Steen, 2020). According to Christensen & Ma (2020) coordination serves the achievement of common goals, this means that coordination during CDM creates the required conditions which makes it easier for participating agencies to adapt to the existing operating procedures for effective DM. This study as a result examined whether coordination during CDM in NCC, Kenya helped in attainment of common goals.

Christensen & Ma (2020) further noted proper coordination among partners as integral to achieving successful collaborative efforts, an indication that collaborating agencies should have clear plans on how their collaborative efforts are going to be coordinated. Even though Christensen & Ma (2020) noted proper coordination as integral to success of collaborative processes, how to achieve such proper coordination and what constitute proper coordination was not highlighted. Also, despite the need for coordination during IAC in DM, research on what mechanism constitutes coordination according to Gao & Zhao (2020) is relatively undertaken. This study therefore, investigated how collaborative disaster management activities in NCC, Kenya were being coordinated and the aspects that resulted to better coordination.

Another indicator of PD that influences CDM effectiveness is shared understanding to situations and problems. Shared understanding according to Smart (2009) is the ability of multiple agents to coordinate their behaviours with respect to each other in order to support the realization of common goals and objectives. Shared understanding will enable agencies share information hence becoming innovative, reduce fear of animosity thus enabling them to positively challenge particular opinions and seek clarification or

alternatives. According to Mandel, Keast& Chamberlain (2016) collaboration entails complex interactions which leads to different outcomes, hence having a shared understanding to Mandel et al (2016) will help minimizes conflict during interactions though enhancing cohesion, commitment and collective action which results to more collaborative practices.

According to Mohamed, Ferzandi& Hamilton (2010) shared understanding encompasses various aspects such as similarity, consensus, compatibility and overlap. The implication of this is that agencies participating in CDM should be willing to exhibit similar values, readiness to reach consensus and have compatible goals, objectives and above all be ready to manage overlaps in agency mandates and goals. Failing to manage overlap in mandates and lack of attainment of a shared situational understanding would lead to agencies competing amongst themselves.

According to a study by Boin, Hart, Stern and Sundelius (2017) in Netherlands, organizations should support shared situation awareness and joint operating pictures so as to develop shared understanding for better decision making among diverse actors involved in a CDM. However, in proposing support for shared awareness and joint operating pictures, Boin et al (2017) didn't articulate on what exactly is to be done for agencies to attain shared situational awareness and attain joint operating picture. Therefore, this study examined how shared understanding to problems during CDM in NCC, Kenya influenced collaboration effectiveness, how various DMA attained shared understanding to problems during CDM.

A study by Okechukwu, Charles, Abdul and Ikechukwu (2020) on IAC and the management of counter-insurgency against Boko Haram in Nigeria observed that capacity to collaborate by the different security agencies was key in determining the success of collaborative security operations. The study noted that lack of collaboration capacity by security agencies was negatively impacting on the effectiveness of collaborative security operations against the insurgencies. Even though the study by Okechukwu et al (2020) noted collaboration capacity by participating agencies as key in determining success of IAC, how agencies develops capacity to collaborate was not articulated. Therefore, this study examined how agencies within NCC, Kenya formed capacities to collaborate by looking at the influencing factors.

Previous studies on IAC have noted clarity in roles and responsibilities to influence CDM effectiveness (Curnin, Owen, Paton, Trist & Parsons, 2015). For instance, poor role understanding was noted by Pollock (2013) as an impediment to the collaborative response during the London 7/7 bombings attack. Clarity in roles and responsibilities during CDM means that participating agencies get into the collaborative process knowing what their roles are or upon getting to a CDM arrangement, immediately they are allocated specific roles and responsibilities to play.

Achieving role clarity during CDM facilitates trust, avoids role duplication, reduces undue conflicts and minimizes tensions while lack of it will result to reduction in information sharing and flow between the agencies involved. These observations were noted by Gil-Garcia, Guler, Pardo & Burke (2019) who noted clarity in roles and responsibilities to enable other important determinants of success of CDM. For instance,

building trust among collaborative agencies, increasing collaborators willingness and commitment and minimizing of conflicts, thus influencing CDM effectiveness positively. Despite studies indicating the need for clear guidelines on roles and responsibilities during CDM, there is still lack of clear protocols for governing agencies roles and responsibilities, where existing frameworks do not define how role clarity during collaborations should take place between the various participating agencies during collaborative management of disasters.

This absence of clear guidelines results to lack of congruent planning and common tactics, where different agencies have different sets of plans on how to manage given incident scenarios, and in most cases those plans do not match. This negatively affects development of strategies and tactics resulting in loss of time and ultimately hindering collaboration. Even though Curnin et al (2015) noted role clarity as influencing CDM actions positively, how distribution of roles during CDM is achieved was not covered. Therefore, this study examined how various DMA within NCC, Kenya shared roles and responsibilities during CDM with a view to finding out whether there were clear guidelines and protocols governing agencies roles and responsibilities during CDM and how presence or absence of such influenced effectiveness of CDM in NCC, Kenya.

Past experience in collaborations work by agencies and individuals, prior experience of individuals in working together during collaborations for longer periods of time were seen to have positive influence on effectiveness of CDM (Grant & Hoover, 2002). This is because past interactions between agencies or individuals lead to development of networked connections which enhances CDM. However, these views did not take into

account that there can also be bad past experience which can have different influence on effectiveness of CDM. Hence the study examined the influence of both good and bad past experience on CDM effectiveness in NCC, Kenya.

According to Emerson, Nabatchi and Balogh (2011) leadership is crucial to the success of IA arrangements, where strong leadership and high levels of commitment by such leaders was observed to influence effectiveness of collaborative processes. CDM Leaders need to have a sense of value towards collaborative framework. Having collaborative leaders who have a sense of value towards collaboration help create space for personnels from different agencies to feel comfortable approaching collaboration. It also creates legitimacy and mobilizes social capital, thus influencing CDM effectiveness positively.

According to Khunwishit, Choosuk & Webb (2018) leadership abilities relevant for CDM includes ability to inspire, influence and enlist stakeholders, ability to work and coordinate with multiple sectors and disciplines, ability to pursue new ideas, ability to take risks and ability to communicate effectively. Sutton, Cherney and White (2008) emphasized that CDM leaders should have problem solving skills and analysis, technical understanding of disaster management as well as monitoring and evaluation skills.

Karaca, Kapucu & Van wart (2012) suggested transformational leadership as needed for CDM where leaders influence the vision in ways that encourage commitment and passion through follower trust. Transformational leaders stimulate an environment that allows for new ideas, new vision and inspire motivation that support commitment in followers and builds a sense of team work and cohesion (Karaca et al, 2012). Kapucu and Garayev

(2013) noted the facilitator style of leadership instead of the top-down hierarchical style of leadership to influence positively the effectiveness of collaborations positively. Even though Karaca et al (2012) suggested transformational style of leadership, while Kapucu and Garayev (2013) talked of facilitator style of leadership as the most appropriate for CDM. There are other styles of leadership that can be appropriate for CDM, hence the need for this study to investigate appropriate leadership style(s) that were adopted in NCC, Kenya during CDM arrangement.

Having strong leadership during collaborations was stressed by Emerson et al. (2011), this was supported by Jonson, Winstow, Schulz and Hardy (2003) who identified strong leadership as one of the critical elements of effective collaboration efforts. These observations were noted by Akhtar (2012) who conducted a study in Pakistan and noted the need to have competent leaders with strong leadership and social skills as having impacted on the collaborative response to the South Asian earthquake of 2005. Despite existence of consensus by existing literature on strong leadership as having positive impact on collaborative efforts, how such leaders were identified, and what constituted strong leaders in CDM was lacking from the literature. This study therefore, examined how CDM leaders were identified in NCC, desired attributes for CDM leaders and how leadership influenced CDM in NCC, Kenya.

2.2 Theoretical Framework

The study was guided by three theories: Resource Dependence Theory (RDT), Social Capital Theory (SCT), and Institutional Collective Action Theory (ICAT). Extensive review of these theories laid sound background upon which the interdependence of

organizations at various levels in disaster management can be understood. The theories explore the concepts of institutional networks and support dependencies, and resource mobilization which are linked directly to IAC in management of disasters.

Objective one of this study assessed the influence of organizational dynamics on the performance of collaborative disaster management and is anchored in the RDT, while objective two, which examined human dynamics influence on collaborative disaster management is anchored in SCT. Objective three evaluated the impact of process dynamics on the effectiveness of is anchored in ICAT as process dynamics revolve around the manner in which collaboration process is managed.

2.2.1 Resource Dependency Theory

Resource dependence theory was proposed by Pfeffer and Salancik in 1978. The proponents of the RDT argue against the notion of self-sufficiency of an organization. The theory states that successful operation and survival of an organization depends on other organizations and external stakeholders to provide the necessary resources (Pfeffer & Salancik, 2003). Therefore, the value of resource needs and resource exchange among organizations is the fundamental emphasis of RDT. Johnson (1995) summarized main concerns of RDT to entail the exchange of essential resources among organizations due to the scarcity of such resources.

Scholars such as Hughes (2003), Pfeffer and Salancik (2003), and Casciaro and Piskorski (2005) observed dynamic interactions among organizations as they build inter-organizational relations to facilitate beneficial management of their resource

dependencies. According to Hillman, Whither, & Collins (2009) the central idea of the theory is that an organization cannot survive unless it is able to effectively manoeuver the external environment to access essential resources. Pfeffer and Salancik (2003) also pointed out at inter-organizational dependence as a key factor in the successful operations of an organization.

Organizations tend to maintain their interdependencies and connections through supplier relationships, institutional tools and rules, legal regulations, and professional associations (Pfeffer & Salancik, 2003). Casciaro and Piskorski (2005) noted that mutual dependence among organizations leads to inter-organizational action and collaboration, while power imbalance hinders mergers and collaboration. The tenets of RDT are often illustrated in disaster response networks in which organizations of different levels and sectors within and outside the government depend on one another to overcome constraints of their individual incapacities (Casciaro and Piskorski, 2005).

For instance, DM in Kenya is a function of both forms of government, the devolved and national government, however devolved governments depend on the national government to handle bigger challenges and provide relief in the face of disasters which are beyond their capacity. Similarly, national governments often look up to international organizations to assist in responding to situations which are beyond their capacity. According to Hillman et al. (2009) relationships among organizations cannot be explored fully from the RDT perspective since inter-organizational networks and relations entails dynamic power dependencies which the theory cannot fully explain by itself.

Two other theories therefore were introduced to contribute to deeper understanding and support RDT. In a CDM, the resources being shared are being provided for and by individuals who operate under the guidance of institutional procedures and structures. Hence, need for theories like SCT and ICAT to provide in-depth and contextual understanding of disaster response in support of the RDT.

2.2.2 Social Capital Theory

Social capital theory was first proposed by French social theorist Pierre Bourdieu (1930-2002) and later American social scientist James Coleman and American political scientist David Putnam (1986-2000). The concept of SCT is defined in multiple ways across different disciplines, as observed by Ostrom (2009) who noted that two assumptions are often emphasized by most of these definitions. The first assumption is that social capital is one of the resources which are only accessible by social network members while the other assumption is that there is a unique capital in a given social structure which the social network members can exploit to advance their interests. Therefore, social capital can be considered as a combination of resources which are derived from, accessed through, and embedded within a network of relationships among organizations and individuals (Nahapiet & Ghoshal, 1998).

According to Ostrom (2009) and Helliwell, Akin, Shiplett and Wang (2018), social capital enables a network of individuals to share common values, norms and shared understanding in a formal or informal association, this facilitates cooperation, collective actions and problem solving among the members. According to Lin (1999) SCT contains the following elements; resources embedded in a network, resources in a purposive action

and resource mobilization. The greatest strength of SCT is seen as lying in its ability to ensure that other actors within the social network access the shared resources and also help organizations in a collaboration to exert influence as opposed to single actors while helping to spread innovation in a social network. According to Meinzen, DiGregorio& McCarthy (2004), SCT entails groups, networks, sanctions, norms, common rules, exchanges, reciprocity, and trust relations which allow generation of social capital assets.

Bartkus and Davis (2009) noted that the study of social capital provides explanations of human behaviours as they act collaboratively through shared norms, networks, and trust. This position was also supported by Meinzen-Dick et al (2004) who pointed out at SCT as a source of a critical framework upon which social relationships and connections can be explained for generation of collective actions to benefit members of a given group. Theoretically, SCT is applicable at various units and levels to analyze interactions among communities, organizations, and individuals. Nahapiet (2009) explained that SCT is also useful in studying the interrelationships among organizations at various analysis levels.

The current study is focused on the analysis of networks and organizations' collaborative disaster responses. Social capital concept denotes resources resulting from inter-organizational or interpersonal relationships functioning collectively (Bartkus & Davis 2009). Objective two of the study which aims at examining HD influence on CDM is anchored in the SCT since HD revolves around issues of trust, interaction of individual personalities, and social norms. According to Ramos-Pinto (2006) social capital facilitate collectively made actions where social capital elements are potentially capable of making collective actions. It is important to note that actions of individuals coming together in a

collaborative arrangement are guided by well laid down institutional procedures and structures hence affecting greatly how these individuals will behave, hence introduction of institutional collective action to supplement the theory of social capital.

2.2.3 Institutional Collective Action Theory

Institutional collective action theory was proposed by Mancur Olson in 1965 as a social science, whose assumption is that people who are sharing some interests are naturally inclined to collaborate while pursuing such interests. Institutional approach to solving social problems is noted as the basis of ICAT, since its main concern is to explain the perception and collective actions of individuals with a common interest (Claque, 1997). This collective action tends to influence individuals into creating groups of people with identical aspirations and challenges for the purpose of collectively achieving different goals which cannot be met singlehandedly by individual members. According to Manchin 2013, ICAT is useful for explaining successful uptake of collaborative process in management.

Group members pool their resources such as capital and labour to facilitate effective undertaking of different activities which would be almost impossible for individual members due to resource limitations. According to Kwon and Feiock (2010), one's ability to engage in collective solutions of problems lies on his or her capacity to effectively solve conflicts even the face of diverse preferences and ideas. This statement underscores the fact that collaborations and cooperation among entities thrive when the accompanying benefits are potentially higher than the associated costs. Associated cost in this context is described by Feiock and Scholz (2010) as costs incurred when coordinating different

institutional players to cooperate for better decision making through negotiations. Some costs are also involved to facilitate enforcement and monitoring of the agreements and cooperative alliances.

Collaboration among entities is often hindered by inter-organizational networks, political institutions, and community characteristics which are evidenced by transaction costs and problems (Feiock et al., 2005). The ICAT is noted by Feiock and Park (2005) as a suitable framework for explaining the cooperation and competition among various entities and governments within systems of decentralized governance. According to Feiock and Scholz (2010), players in such systems may include collective entities like national and local governments whose collective actions can bring about positive results of better value than outcomes of actions of individual institutional. The ICAT holds that one needs to understand four factors before he can adequately understand the benefits and costs of local players' cooperative arrangements.

The four factors include the structure of inter-local policy networks, the kinds of political institutions and processes within the community, the contextual characteristics like the community's social relationships and demographics, and the costs of exchanging goods or services (Feiock, 2005).

2.3 Summary of Theoretical Framework

As the RDT has explained that the survival and success of collaborative disaster management arrangements depends on how such arrangements acquire and exchange resources from the participating agencies. This resource exchange by agencies is

dependent upon institutional tools including rules, policies, regulations and structures. The SCT indulged into how agencies as a result of shared norms, values, trust, understanding and interests can share and exchange resources even in the absence of institutional rules, regulations and policies. The ICAT addressed how complex concerns of a group are tackled on basis of collective decision making and joint production of public good and assessment of others capacities to make decision. The three theories as used in this study explained rationale for agencies forming collaborations during disaster management as the agencies maintain their independences, factors influencing exchange of resources during the collaborations which has bearing on the effectiveness of such collaborations.

2.4 Conceptual Framework

The conceptual framework (Figure 2.1) hypothesizes that CDM in management of disasters is a function of interaction of various IA operational dynamics including organizational, human and process dynamics which influence its effectiveness. From the conceptual framework, the various measurable indicators are given: Organizational dynamics measurable indicators included agency cultures, agency beliefs and values, agency polices, structures and procedures, agencies goals, mandates and missions, agency commitment and perceived role in the collaboration.

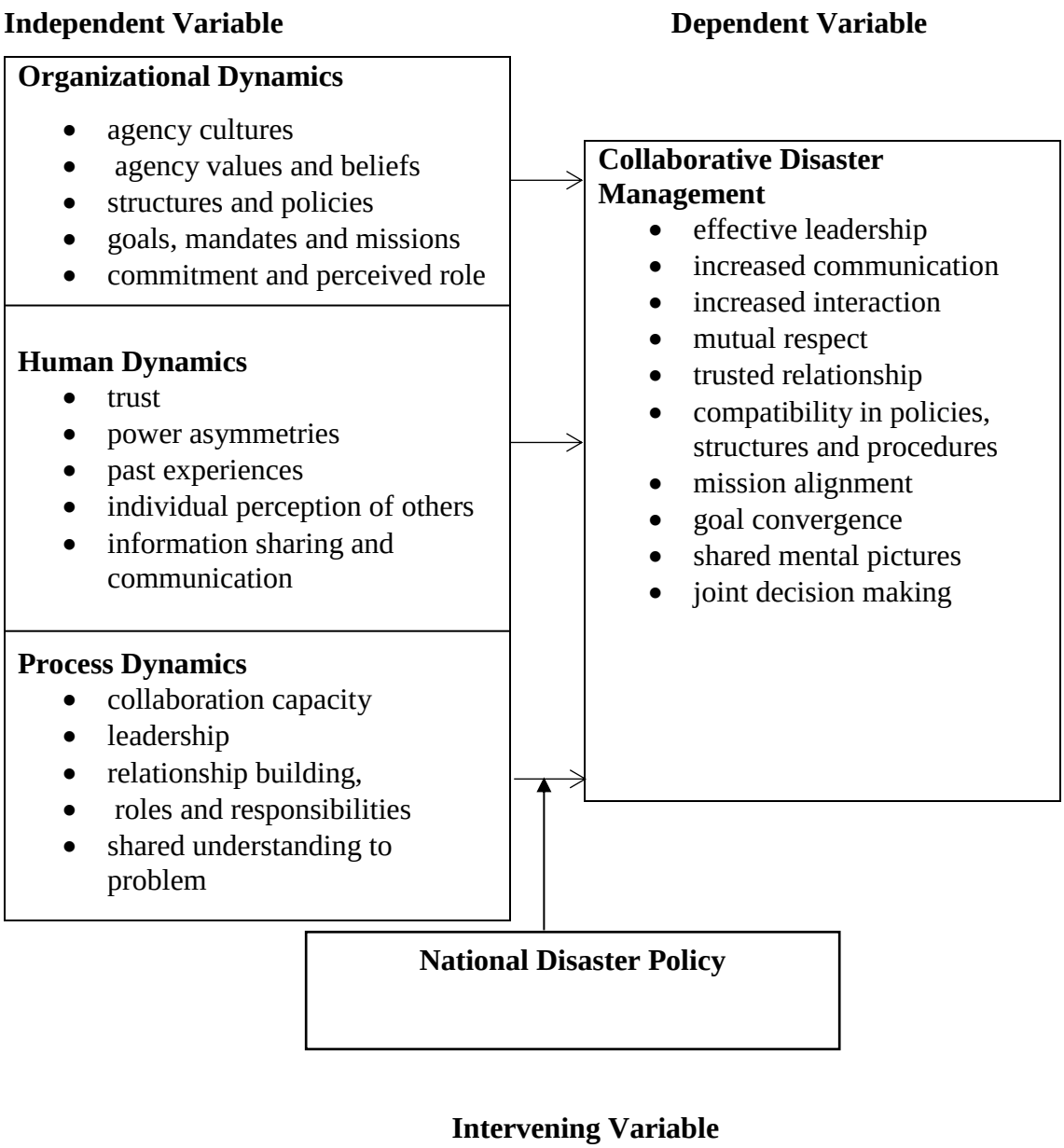

Figure 2.1: Conceptual Framework

Source: (Researcher, 2021).

HD measurable indicators included trust, past experiences and interactions, individual perception of others during collaborations, information sharing and communication. PD measurable indicators included collaboration capacity, leadership, clarity in roles and

responsibilities, relationship building, joint decision making and shared understanding to problems. The relationship of the independent variables and dependent variables were tested in the presence of the moderating variable which was national disaster management policy. Collaborative disaster management was the dependent variable and its measurable indicators were effective leadership, increased communication, increased interaction, mutual respect, trusted relationships, compatibility in agencies policies, structures and processes, goal convergence, missions alignment, shared mental pictures and joint decision making.

CHAPTER THREE

METHODOLOGY

This study explored the influence of IAOD on CDM in NCC, Kenya. This chapter outlines the research design, location of the study, target population, sampling techniques and sample size, data collection methods, data analysis, instruments validity and reliability, legal and ethical considerations

3.1 Research Design

This research employed both cross sectional survey and phenomenological research designs to enable investigations into the subject under study. Phenomenological research design was useful in finding out human experiences of the people involved (Maypole &Davies 2001), i.e., lived experiences of disaster management personnel who had been involved in IAC, whereby respondents were tasked to describe their experiences in participating in IAC and their perceptions. Cross sectional survey design was employed since the study comprised of different agencies involved in management of disaster, easy to conduct and complete and it takes a representative sample (cross-section) from the population to generalize the findings for the study population (Levin, 2006).

3.2 Study Area

The study site for this research was Nairobi City County (Appendix VI) which spans 696.1km^2 and situated between Latitude 1°18'South and longitude 36°45' East. Its neighbouring counties include Machakos in the East, Kajiado in the South, and Kiambu County to the West and North (Geological Department of Kenya, 2013. The NCC was a

suitable study site because the county had in the past experienced some of the most devastating disasters in the country including the USA Embassy attack of 1998, Westgate mall terrorist attack (2013), several fire incidences including the Nakumatt downtown fire tragedy (2004), the regular Gikomba market fires, the Sinai fire, several structural collapses in the city's estates, disease outbreaks, the 14 Riverside Drive Dusit 2 terrorist attack where 21 lives were lost on 14th January 2019 among others.

Also, the site is highly populated with wide range of economic activities, multiple institutions and a mix of governmental and non-governmental actors. In such an area, working together is not an option but a necessity. The NCC is also the capital of Kenya and majority of disaster management agencies have their headquarters here. Having experienced interaction of many DMA in its various experienced disasters made it a good choice for the study.

3.3 Target Population

The study targeted3045 members drawn from various disaster management agencies both in the government and non-government sectors, the DMA covered includes: The Kenya Defence Forces (KDF), National Police Service (NPS), The National Youth Service (NYS), Nairobi Fire Rescue and Services (NFR&S), the Kenya Red Cross Society (KRCS). The two main national disaster management coordinative agencies, the National Disaster Operation Center (NDOC) and National Disaster Management Unit (NDMU) were also included in the study.

Only members of NPS working in the NCC in the general duty categories in the police duty weekly order were covered, those NPS members working in the NCC deployed to specialized units, performing special duties, or on attachments were not covered. For NYS officers, the study included officers at the NYS headquarters Ruaraka who are deployed to a special team responsible for disaster response, NYS-Disaster Response Team. For KDF personnel, only officers deployed to the Disaster Response Brigade were covered (KDF-DRB). The researcher concentrated on this group because it was the most appropriate for the study since this group constituted members who had interacted with disaster situations in their day-to-day activities (Table 3.1)

Table 3.1: Target Population

Target Population	**Frequency**
National Police Service officers working in NCC	2000
Kenya Defence Force (DRB)	250
National Youth Service	195
Nairobi City County Fire Rescue &Disaster Management Department (NCC FR&DMD)	300
National Disaster Management Unit Officers	80
National Disaster Operation Center Staff	80
Kenya Red Cross Society	140
Total	**3045**

Source: (NPS, 2020; NFS, 2020; KRCS, 2020; KDF, 2020; NYS, 2020; NDMU and NDOC, 2019).

3.4 Sampling Technique

According to Adigun &Ismail (2006), sampling is the process of drawing up smaller subjects from a population. Purposive sampling was used to select senior officers from

the various DMA included in the study. Stratified sampling and simple random sampling techniques were applied to select the respondents from the various strata of respondents from which the questionnaires were administered. Purposive sampling can be described as a method of sampling where the researcher deliberately chooses who to include in the study based on the virtue of their experience and knowledge of the phenomenon of interest (Yin, 2016). To ensure representation, the researcher included two senior DMA in all the DMA agencies included in the study apart from the NPS where four senior NPS officers were included, this is because NPS constituted the largest portion of the study population.

Purposive sampling allowed the researcher to select with purpose senior DMAs officers. The purpose of selecting senior disaster management officers for this study was due to their wealth of experience, knowledge and exposure in CDM. This was demonstrated during the interview where they were able to give out their opinions and experience in CDM in NCC, Kenya. Respondents purposively sampled yielded qualitative data. Stratified random sampling and simple random sampling were employed to select respondent junior officers across all the agencies involved in the study. Where strata were obtained on the basis of junior DMA ranks or level of responsibility at work, after which each stratum was randomly sampled. This ensured that all subgroups within junior DMA are well represented, this helped in making valid inferences from the sample with greater precision. These responses yielded quantitative data.

3.5 Sample Size

A sample, according to Newman (2003) is a manageable portion of a target population which is intended to yield some knowledge about a population of concern, the study employed Yamane's formula to determining sample size. According to Yamane's formula sample size is given by n= N/ 1+N (e) *(e)

Where:

n= sample size

N= population size

e=level of precision at 95% confidence level,

For finite population, it is corrected as follows n = n0/1+ (n0-1)/N

Table 3.2: Sample Size

Respondents	**Sample Size**
National Police Service officers	(2000*317)/3045= 208
Kenya Defence Forces (DRB)	(250* 317)/3045 = 25
National Youth Service	(195* 317)/ 3045= 20
Nairobi City County Fire and Rescue Services	(300* 317)/ 3045= 30
National Disaster Management Unit staffs	(80* 317)/ 3045 = 10
National Disaster Operation Center staffs	(80*317)/ 3045 = 10
Kenya Red Cross Society Nairobi Branch staffs	(140*317) /3045 = 14
Total	**317**

Source: (Researcher, 2021).

Where:

n=is the new corrected sample size

n0= is the sample size before correction

N= population size.

Applying the above formula, sample size is calculated as follows

Sample size before correction= 3045/ 1+3045 (0.05*0.05) =353

Being for finite population, it is corrected as follows

353/1+ (353-1)/3045 =317 is the sample size (Table 3.2).

3.6 Instruments of Data Collection

Data collection according to Kombo and Tromp (2006) is gathering of specific information from respondents to provide or refute some facts. The researcher used key informant interviews (Appendix II) and questionnaires (Appendix III) to collect primary data, where questionnaires were used to gather data from DMA junior personnel who formed the majority of the respondents. The demographic section of the questionnaire constituted closed ended questions, followed by questions in a Likert scale format. Use of questionnaires by the researcher saved on time and the cost of gathering information. Key informant interviews were conducted to gather in depth information from the senior officers of the disaster management and coordination agencies.

In phenomenological studies information is generally obtained through interviews (Donalek, 2014). The main aim of the in-depth interviews as used in this study was to provide researcher an opportunity to understand meaning, subjective opinions and beliefs of senior DMA officers on CDM. The issues to be explored were organized in a flexible structure where through open ended questions and iterative probing the researcher was able to listen to what each participant was narrating, this resulted to rich data. The purpose of the interviews was not only for getting answers to the questions, rather, an interest in understanding the lived experiences of the participant in CDM and the meaning they

make of that experience. The in-depth and detailed qualitative data obtained from key informant interviews was used to corroborate the findings from the questionnaires.

3.7 Pretesting of Research Instruments

The pilot study was conducted in Nakuru County where the researcher administered 30 questionnaires to members of NPS, Nakuru County fire and disaster management department and KRCS Nakuru branch. The researcher also successfully managed to conduct three pilot interviews with senior officers from NPS, Nakuru branch manager KRCS and deputy chief officer Nakuru fire and disaster management unit.

Nakuru County was chosen for piloting because the county had in the past experienced several disasters including tribal and ethnic clashes of 2007 post-election violence which resulted to death and displacement of populations, the Karai chemical explosion along Naivasha-Nakuru highway in 2016, the Molo oil tanker explosion in 2009, the Subukia floods as a result of bursting of the Patel dam in 2018 and many fatal accidents along Nairobi, Nakuru and Eldoret highway. These had exposed the respondents to scenarios similar to the NCC in Kenya. Accessibility and convenience to research participant were the main drivers to choosing the participants. From the pilot interview interaction, the three senior DMAs officers interviewed had an understanding of the subject matter as evidenced in the pilot study, each interview lasted between 40-60 minutes. During the interviews, it was evident that participants were not willing to be recorded (audio), but allowed the researcher to take short notes.

Piloting research instruments allowed the researcher to establish, recognize and understand issues that might arise from questionnaires and interview questions. The feedback from the pilot interview revealed that some of the questions from the interview guide were not clear, as the key informant had difficulties in answering them appropriately, also the sequence of the questions was not adequate. As a result, the researcher reframed some of the questions to make them clear and easy to understand, in addition relevant questions were added and some questions removed from the interview guide to avoid misinterpretation. The pilot interview sessions provided the researcher an opportunity to deal with reality of emotions, behaviours, reactions and be able to control the process, this was very advantageous to the researcher, since it helped in identifying weaknesses in particular skills and techniques which were later avoided during the actual interviews.

Piloting also enhanced researchers' self confidence in being able to conduct such interviews, making the actual data collection process easier. Concerning questionnaires, the researcher managed to collect 25 correctly filled questionnaires out of the 30 administered, where the 25 were coded and data entered in to SPSS for analysis. From the analysis of the questionnaires piloted, the researcher was able to identify questions that were unclear, ambiguous and repetitive, as a result questions were reframed, useful questions added and those unnecessary removed from questionnaire. This helped in improving the research instrument.

3.8 Instrument Validity and Reliability

Collis and Hussey (2013) defined validity as research instrument's ability to measure the intended objective. The researcher ensured content validity by subjecting the instrument to subject matter experts or specialists, in this case the research supervisors considered the individual items within an instrument by checking that there was enough content to test research objectives and whether there were enough items to be tested. Also, peer examination where research instruments were reviewed and commented on by several non-participants who are familiar with the subject matter and who possess enough background in the area of study.

Construct validity which is explained by McMillan & Schumacher (2010) as concerned with the efficacy of a test to gauge learners' knowledge about the relevant topic of concern, according to Mahoney (2008), construct validity is the most applicable form of validity to assess measurement and ensures that instrument measures the trait that is intended to measure. It was achieved through accurate operationalization of the key study variables.

Reliability is the extent to which an instrument is capable of producing consistent outcomes when subjected to multiple tests (Trochim, 2006). Additionally, it describes sustained stability of scores across the study respondents. The study used Cronbach's Coefficient Alpha (α) in estimating the internal consistency by assessing how items correlate among themselves in the same instrument. Cronbach's Coefficient Alpha is a general form of the Kunder-Richaldson's (K-R20) formula, where the use of K-R20 in assessing internal consistency of an instrument is based on the split-halves of the

instrument. This formula is more desirable since it is not time consuming compared to other methods of computing or estimating reliability of instruments. The Kunder-Richardson (K-R20) also known as Cronbach's Coefficient Alpha (α) is computed as follows:

KR20= (K) (S-∑S) ÷ (S) (K-1)

Where;

KR20= Reliability coefficient of internal consistency

K =No. of items used to measure the concept

∑S = Variance of all the scores

S = Variance of individual items

When KR20 ≥.70, it indicates high coefficient implying that items are highly correlated among themselves. The estimated co-efficient for the study was 0.75 and the achieved value was 0.753as shown in Table 3.3 below and this paved way for further analysis and interpretation.

Table 3.3: Reliability Test

Variable	Cronbach's Alpha	No. of Items	Comment
Organizational Dynamics	0.763	11	Reliable
Human Dynamics	0.601	11	Reliable
Process Dynamics	0.60	12	Reliable
CDM Contributing Factors	0.803	9	Reliable
Overall	0.753	43	Reliable

Source: Author (2021)

3.9 Data Collection Techniques and Procedure

The researcher recruited five research assistants and trained them on how to administer questionnaires so that they would help in data collection specifically in administering the questionnaires. Drop and pick later method was applied in the administration of the questionnaires, where the researcher with the assistance of research assistants dropped questionnaires to the respondents, requested them to fill and organized to pick the filled questionnaires later. The researcher personally obtained the qualitative data through conducting face-to-face interviews with key informants. Face-to-face interview was the preferred mode of interview by the researcher because it was deemed as a multi-method of data collection since the interviewer is able to strengthen data analysis by adding visual elements of the interviewee, also enables respondents to clarify answers and or to ask for clarification (Fowler, 2014).

During the interviews, it emerged that most of the key informants were not comfortable to be audio recorded, therefore the researcher was taking notes by use of on-site paper and pen technique to identify data as the interview progressed and expanded on the jotted notes once the interview was done. This field note taking practice was significant in that it ensured that ideas and memories from interviews are not misplaced, it also allowed the researcher to re-order the materials and make connections within and outside the interview. The notes were always securely locked away when not in use.

3.10 Data Analysis

The researcher used thematic analysis to analyze qualitative data, while descriptive and

inferential analyses were used to analyze quantitative data. Thematic analysis enables researcher to extract information that helps in determining relationship between variables and to compare sets of evidence that pertains to different situations in the same study (Alholjailan, 2012). According to Brown and Clarke (2006), thematic analysis enables identification, analysis and reporting of themes or patterns that occur across data set. Thematic analysis approach that was taken during analysis was inductive, which according to Willig (2013) utilizes a theoretically informed pattern though which data can be coded and themes derived from it.

Qualitative data obtained from the field was analyzed as follows; the researcher went through the transcripts, identified those sections that are relevant to the research questions and objectives, divided data and chose groups to use in developing coding scheme. Major themes or topics were classified, key quotations underlined and all materials relevant to a particular topic placed together. Variables and associations between them were identified. The researcher used the main interview questions as the themes. In coding the data, the researcher made connections between different parts of the data and reviewed the whole of the data by identifying it's most significant meaning or simply getting what the data was trying to say or tell us.

Coding of the qualitative data was done to reduce lots of data into small chunks of meaning where only data that was relevant or had captured something interesting about research question was considered or coded. Thematic analysis (categorization of related themes) was preferred for analyzing qualitative data because unlike other qualitative methods it is not tied to a particular epistemological or theoretical perspective making it

very flexible. Thematic analysis also provides a logical way to analyze qualitative data leading to rich descriptions, explanation, contribution to knowledge and recommendation for best practice. A common critique of thematic analysis is that it has some potential for bias since in most cases it relies on a single analyst, to avoid this biasness in the analysis, the researcher employed assistance of two analysts who coded the transcript independently and then compared notes.

Descriptive statistical procedures were used to analyze quantitative data where demographic data were analyzed and presented in tables, and charts. Descriptive analysis of data did not provide conclusive results since it only helped to describe the properties of a specific sample under study. Thus, in order to obtain conclusive results, the researcher first subjected quantitative data to linear regression analysis to determine if there was any significant relationship between the IAODs and CDM. Further, correlation analysis (Bivariate) was performed to determine whether the three IAODs were interrelated by determining their correlation and their individual relationships with CDM.

Inferential analysis that followed description of data to provide conclusive results enabled generalization to be made to the sample and extended to the entire population. Thus, inferential analysis is aimed at testing of hypotheses (Mishra et al., 2018) and to make judgment about probability that an observed difference between groups is a dependable one or one that happen by chance.

3.11 Ethical Considerations

Upon getting the university letter of clearance, the researcher sought permission from the National Commission for Science, Technology and Innovation (NACOSTI), got clearance from NCC Director of Education and subsequently ensured clearance from the NPS, the KDF, NYS, NCC FR& DMD, NDMU, NDOC and the KRCS. Issues of data management and ethical consideration were of great concern in this study since it was involving participants mainly from security related disciplines, therefore this required prior approvals from their headquarters.

The researcher through the use of consent forms, informed the respondents regarding the purpose and aims of the research, where confidentiality of information supplied by participants was maintained by ensuring that such information was not shared with anyone. These procedures were considered imperative as the interview covered some sensitive topic related to national security issues. According to Jennings (2012), the best practices in research includes using a consent form, informing participants about the research aim, objectives and assuring them of confidentiality.

The research tools were kept safely before, during and after data collection to ensure that there was no unauthorized access to the data, further the research assistants were trained on how to handle and keep research tools secure and safely from unauthorized access while aiding in administering of the questionnaires. Also, the researcher assured respondents of anonymity by explaining to them that their names were not appearing anywhere in the research. Consent was sought from the respondents and participation was voluntarily.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND DISCUSSION

This chapter presents analyzed results of the study conducted on DMA to assess the IAOD influence on functioning of a CDM approach within NCC, Kenya based on the three specific objective of the study which are to assess the influence of organizational dynamics on the performance of CDM arrangements, examine human dynamics influence on the implementation of CDM arrangement and evaluate the impacts of process dynamics on the effectiveness of CDM approach in the management of disasters in NCC, Kenya. A total of 297 questionnaires were administered and 266 returned.

4.1 Demographic Characteristics of Respondents

Sufficient personal information of the respondents was necessary to understand the kind of respondent from which primary data was collected and the basis under which the interpretations are made. This helped the researcher understand some of the pertinent issues that were important in the analysis of findings. This section represents analysis from respondents individual characteristics, where respondents were asked to provide information regarding the DMA they work for, their gender, age and their general experience in disaster management. Also, previous IAC experience during emergency/disaster management, experience in years for those who had worked in CDM setting, individual rating of their experience in IAC during emergency/disaster management and rating of the overall effectiveness of CDM as a strategy in DM.

4.1.1 Response Rate

The study administered a total of 297 questionnaires to the sample respondents from the various DMA to fill due to their busy schedule. After a period of two weeks a total of 266 questionnaires were collected giving a response rate of 89.56 percent. The collected questionnaires were checked for completeness, legibility, consistency and homogeneity and were found correctly filled and eligible for analysis as shown in the Table 4.1.

Table 4.1: Response Rate

Questionnaires	Frequency	Percentage
Response	266	89.56
Non-Response	31	10.44
Total	**297**	**100**

Source: Field Data (2021).

Additionally, 16 key informants out of the targeted 20 were interviewed. The response rate obtained above is higher than what was considered by Hagaman and Wutich (2017) of 33% and 66% to be a sufficient representative sample of the population of study. This high response rate according to Baguley (2004) increases the statistical power.

4.1.2 Gender of Respondents

The researcher sought to find out gender composition of the various DMA, where the respondents were asked to indicate their gender and from the study findings, majority (73.7%) of the respondents were males, while 26.3 percent were females. The findings are presented in Table 4.2 below.

Table 4.2: Gender of Respondents

	Frequency	Percentage
Male	196	73.7
Female	70	26.3
Total	**266**	**100**

Source: Field Data (2021).

This distribution shows that majority of respondents responsible for disaster management activities in the country are males. The high number of male respondents is due to the fact that the agencies involved in the study were mainly disciplined and security related agencies which according to Kronsell and Svedberg (2012) are characterized by maleness. The findings on gender distribution also are in line with what Menya (2016) established where disaster management in NCC was mainly a male dominated field. An employee survey by Department of Homeland Security (DHS) in 2016 in the USA indicated that there were only 36 percent of women in the DHS, an indication that security related professions were male dominated.

Another study by West (2013) indicated that women are still the minority, holding 20% of the positions in homeland security related professions including emergency management. This is a clear indication that security related professions are male dominated if findings from USA, one of the developed countries shows women are holding 20% of positions. According to Pittman (2011), disaster management has been called the "good old boys club" and military dominated. However, the focus of the study is not affected by any known gender related factors.

4.1.3 Age of Respondents

The study further sought to determine the age distribution of the respondents to clearly understand the variation in age and experience and how the age influences CDM. Data obtained from the respondents regarding their age indicated that majority (48.5%) are aged between 31-40 years of age, while 24.4 percent were below 30 years of age, 22.2 percent were aged between 41-50 years of age and 4.9 percent had 50 years and above. The findings are presented in Table 4.3.

Table 4.3: Age of Respondents

Age Distribution	Frequency	Percentage
Below 30 Years	65	24.4
31-40 Years	129	48.5
41-50 Years	59	22.2
Above 50 Years	13	4.9
Total	**266**	**100**

Source: Field Data (2021).

The high number of respondents with age of between 31-40 and of below 30 years was due to the fact that this is the most active and energetic age relied upon by disaster management agencies and mostly relied upon to run errand in their organizations and to perform physical activities, disaster response included, since it is a high energy demanding job. Hence this age category would therefore be the most suited. Fernandez & Shaw (2015) concluded that Youth engagement is needed in disaster management practices, since young people are extraordinary resources to be mobilized around disaster management, for the present and future events (Fleming, 2013; Pfefferbaum et al., 2018; Wong et al.,2010).

Respondents above the age of 50 years were the least represented in the study at 4.9 percent, this can be attributed to the fact that the study was collecting data through questionnaires from DMA junior officers and majority at this age are either promoted to senior ranks or excluded from strenuous physical exercises and redeployed for other duties, therefore this explains the less representation of this age group. Respondents with age ranging between 41-50 years were the second least represented in the study, this is because this group in security and disciplined services constitutes middle level administration cadre referred to as Non-Commissioned Officers (NCOs), whose main duty is to supervise other junior officers in their day-to-day operations and usually their numbers if not large, hence the reason. Amongst the junior level cadre which was the target of the study questionnaires, this group constitute few numbers, hence the less representation in the study.

4.1.4 Disaster Management Agencies

It was important to look at the DMA distribution in order to obtain the different opinions based on personnel experiences. Out of the 266 respondents, majority (67.7%) were from the NPS, followed by KDF and NCCFR& DMD at 7.9 percent each, while 6 percent were from NYS, 4.5 percent were from KRCS. Both NDMU and NDOC were represented by 3 percent each. The NPS had the highest representation in the study owing to their large numbers in the target population, hence they constitute a large number compared to other DMAs. Respondents from KDF were drawn from their specialized unit (DRB) mandated to manage disasters, being a specialized Brigade, it does not constitute a very large number.

Table 4.4: Disaster Management Agencies

DMA	Frequency	Percentage
NPS	180	67.7
KDF (DRB)	21	7.9
NCCFR &DMD	21	7.9
NYS (DRT)	16	6
KRCS	12	4.5
NDMU	8	3
NDOC	8	3
Total	**266**	**100**

Source: Field Data (2021).

Also, NYS respondents were drawn from a specialized team (DRT) based at NYS headquarters and as a specialized team it does not have a large number of personnel, this explains the less representation of KDF and NYS respondents. The NDMU and NDOC had the least representation of respondents according to the study findings, this is due to the fact that both are national disaster management coordinative outfits and consists of very few highly specialized disaster management professionals. Respondents for NCCFR& DMD together with KRCS were from their respective headquarters.

4.1.5 Working Experience of Respondents

The respondents were asked to indicate their level of working experience in terms of years involved in disaster management activities while in service. The obtained results were presented in Table 4.5 below.

Table 4.5: Years of Experience in Disaster Management

Years of Experience	Frequency	Percentage
Below 10 Years	120	45.1
10-15 Years	93	35
16-20 Years	33	12.4
Over 20 Years	20	7.5
Total	**266**	**100**

Source: Field Data (2021).

Data obtained from the respondents regarding their work experience in disaster management related work indicated that majority (45.1%) of the respondents had work experience of below 10 years. This was followed by 35 percent of respondents with work experience of between 10-15 years, those with 16-20 years of experience in DM related work were 12.4 percent while respondents with over 20 years of experience in disaster work were 7.5 percent. Respondents with less than ten years of experience in disaster related activities were the majority, this is because data on the age of respondents had indicated majority of respondents to be young. Having fewer years in service in the agencies meant less years of experience, hence the reason for the high number of respondents with work experience of below ten years. Those with experience of above 20 years were few due to the fact that old respondents were less represented in the study.

4.1.6 Respondents who had Worked in Collaboration with other Agencies

The respondents were further asked to indicate if they have worked in collaboration with other agencies in their active duty in DM. From the study findings, majority (85.7%) of the respondents' indicated that they had previously worked in collaboration with other disaster management agencies while 14.3 percent of the respondents though with

experience in disaster management, they indicated that they had not previously worked in a CDM setting as shown in Table 4.6 below.

Table 4.6: Previous Experience in Collaboration

Previous Experience in CDM	Frequency	Percentage
YES	228	85.7
NO	38	14.3
Total	**266**	**100**

Source: Field Data (2021**).**

Having a high number of respondents with previous experience in collaboration is an indication that DMA have embraced the concept of CDM in realization to the fact that no single agency can manage disasters effectively. This was also noted by Kooiman (2000) who concluded that no single actor, public or private, has the knowledge and information required to solve complex, dynamic and diversified problems. Respondents who had worked in collaboration with other DMA were further asked to indicate the number of years they had worked collaboratively with other DMA. Table 4.7below presents the findings obtained.

Table 4.7: Experience in CDM

Experience in CDM	Frequency	Percentage
Below 5 Years	67	25.2
5-10Years	111	41.7
Over 10 Years	50	18.4
Total	**228**	**100**

Source: Field Data (2021).

Findings further indicated that 41.7 percent of respondents who had worked in a disaster collaborative set up had 5-10 years of experience in collaborations, while 25.3 percent had experience of below 5 years in collaborations and 18.4 percent had experience in collaborations of 10 years and above.

4.1.7 Rating of Individual Experience of IAC

The respondents were asked to rate their individual experience of working collaboratively with other DMA during disaster management in NCC, Kenya. The findings are indicated in Figure 4.1 below.

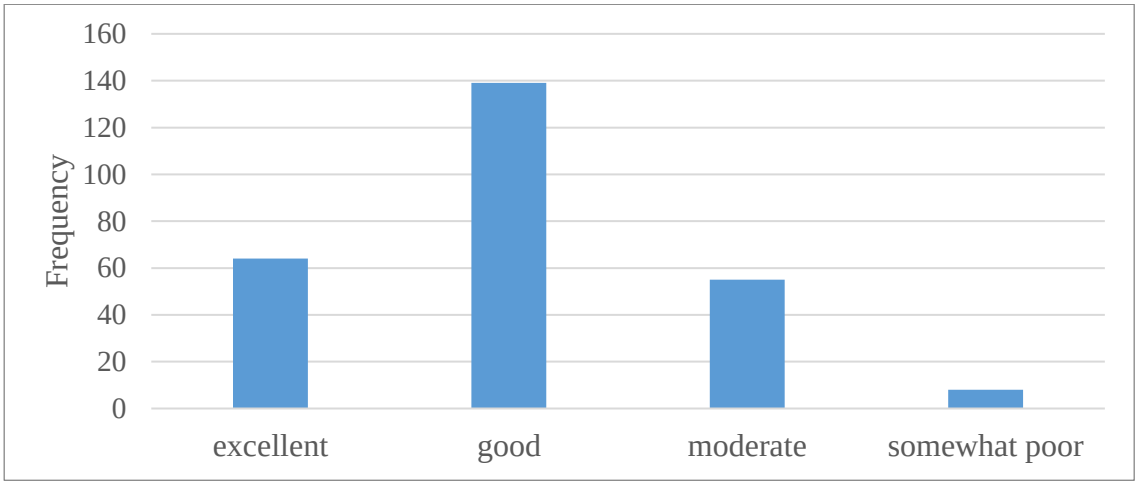

Figure 4.1: Rating of Individual Experience of working collaboratively

Source: Field Data (2021)

The findings indicate that majority (52.3%) of respondents involved in the study rated their experience of working collaboratively with other agencies during DM as good, 24.1 percent rated their collaborative experience as Excellent, 19.9 percent as moderate, 3 percent as somewhat poor while 1.5 percent of the respondents rated their collaborative experience in disaster management as extremely poor. Having majority of respondents

(52.3%) indicating their individual experience in collaborative work to be good implies the potential IA collaborations have in DM have despite organizational diversities which characterizes interorganizational collaborations. However, good experience does not automatic implies effectiveness. Study findings that majority (52.3%) rated their experience in collaboration as good was consistent with findings by Ling (2000) whose study concluded that collaboration was seen as generally a good thing.

4.1.8 Rating of the Overall Effectiveness of IAC

The respondents were further asked to rate the overall effectiveness of IAC and the findings presented in Figure 4.2 below.

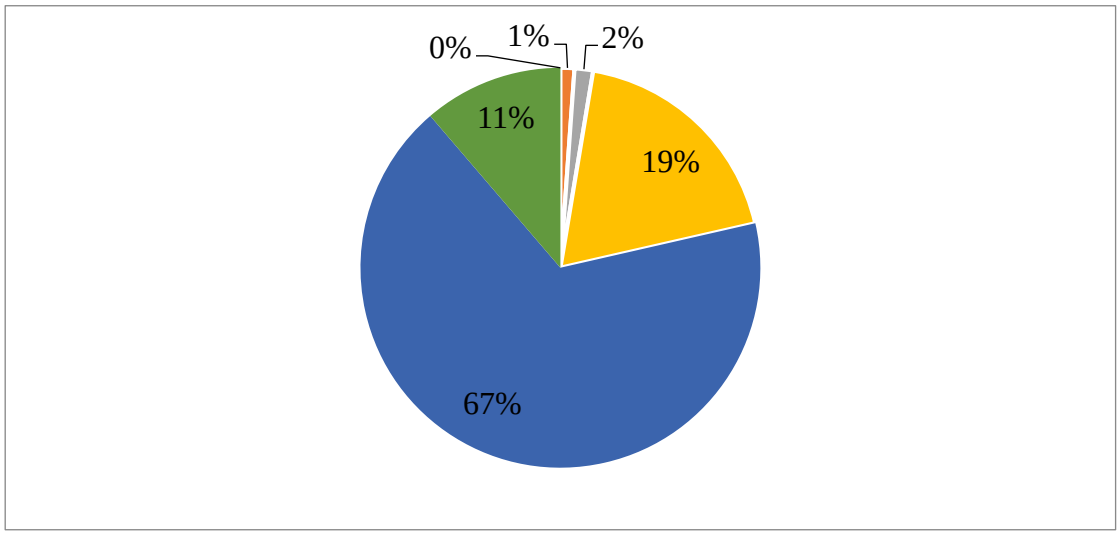

Figure 4.2: Rating of Overall Effectiveness of IAC.
Source: Field Data (2021).

From the study finding, majority of respondents (67.3%) rated the overall effectiveness of IAC as successful, 19 percent of the respondents rated the overall effectiveness of IAC as partial, those who rated the overall effectiveness of IAC as very successful were 11.3

percent, 1.5 percent of the respondents rated the overall effectiveness of IAC as unsuccessful while 1.1 percent rated the overall effectiveness of IAC in managing disasters as very unsuccessful. Having 67.3 percent of respondents indicating the overall effectiveness of IAC in DM as successful implies that collaborations in service delivery is a good approach which should be adopted in other sectors. These findings corroborate conclusion by McLaughlin (2004) that collaboration is the most effective service delivery in all situations. The study findings clearly indicated that collaboration during disaster management in NCC was observed to be an effective strategy in disaster management.

4.2 Organizational Dynamics and Collaborative Disaster Management

This section presents findings, analysis and discussion of data related to study objective one, which was to assess organizational dynamics influence on the implementation of CDM. Therefore, analysis of how various organizational dynamics including agency cultures, agency values, beliefs and philosophies, agency goals, missions and mandates, agency structures, policies and procedures and agency commitment influence CDM are the focus of this section. Table 4.8 below provides a summary of descriptive statics results for organizational dynamics influence on CDM, where SA-Strongly Agree, A-Agree, U-undecided, D-Disagree and SD-Strongly Disagree.

Table 4.8: Descriptive Results Summary for OD Influence on CDM

Statement	SA %	A %	U %	D %	SD %	MEAN	STD DEV
Differences in agency cultures influence CDM effectiveness	24.8	68.0	3.0	3.40	0.80	4.13	0.68
Differences in agency cultures during CDM are unhealthy	15.8	75.2	3.8	4.9	0.4	4.01	0.65
Differences in Beliefs, values and philosophies influences CDM	15.8	75.6	4.5	4.5	0.4	4.05	0.55
Agency Beliefs, values and philosophies influences how agencies perceive others	18.3	70.3	6	5	0.44.	4.11	0.57
Differences in agency goals and Missions influences CDM	20.9	70.4	3.8	2.5	1.4	4.16	0.55
There is need for missions and goals alignment during CDM	30.5	58.9	6	2.8	1.8	4.32	0.59
Agency structures and policies influences CDM	20.3	60.3	2.1	9.8	7	4.25	0.54
There is need for a policy to guide agencies during CDM	60.9	20.5	7.5	9	2	4.65	0.51
Agencies commitment influences CDM	24.7	60.3	7.5	5.0	1.4	4.25	0.58
Agencies perception on Roles during CDM influences their Commitment	30.7	61.2	4.0	3.7	0.4	4.28	0.57
Agencies need to be involved in Decision making so as to be committed towards CDM	40.7	50.9	4.0	3.0	1.4	4.39	0.65

Source: Field Data (2021).

4.2.1 Agency Cultures : Values, beliefs and philosophies

Respondents were asked whether differences in agency cultures influences effectiveness of CDM operations, and from the study findings as presented in Table 4.8, majority (68%) of the respondents agree that differences in agency cultures influences effectiveness of CDM operations, 24.8 percent strongly agree, with 3 percent undecided. About .4 percent disagrees while 0.8 percent strongly disagrees. Differences in agency cultures as a factor influencing CDM effectiveness had a mean of 4.13 and SD of 0.68, implying that differences in agency cultures influences effectiveness of CDM arrangements. Culture can be explained as organizational tacit values, beliefs, values, artifacts such as language and behaviours (Schein, 2010). Traditions, habits and particular way of life or preferred methods of operating that are more of less specific to a particular community also constitute culture

Differences in agency cultures were noted by the study to influence the effectiveness of CDM where 68 percent indicated to agree and only 0.4 percent disagreed. From the definition of culture, the differences in cultures implies that different individuals participating in CDM form different DMA will have different preferred ways of doing things, thinking, exhibit different behaviours, uphold different values, beliefs and philosophies which may be contradictory. It is such different ways of thinking and the held values, philosophies and beliefs that result to conflicts during CDM which influence its effectiveness. However, it is not always automatic that when there are differences in cultures, conflicts will arise, the different ways of doing things and thinking can be a source of innovation or lead to crosspollination of ideas, this will positively influence

CDM effectiveness. The implies that, agencies during CDM should not shun differences in how they approach DM, rather they should take advantage and make use of such differences positively, though this has not been the case in most of CDM arrangements, where individuals have stuck to their ways adversely impacting on CDM arrangements.

Study finding that differences culture influences collaborations corroborate findings by Akhtar, Marr & Garnevska (2012) who in their study found that differences in organizational cultures greatly influenced collaborative response negatively following the 2005 South Asian earthquake in India. Despite study finding and the corroborated literature indicating that differences in agency cultures influence negatively on the effectiveness of CDM, a study by Stahl, Makela, Zander and Mazneuski (2010) contradicts these finding by noting that cultural diversities bring creativity to IA teams by bringing creative inputs into the process and allowing formation of creative processes, positively influencing IAC. Another study by Martin (2014) concluded that cultural diversities had both positive and negative impacts, unfavourable impacts being dysfunctional conflicts, difficulties in achieving harmony while favourable impacts included strong knowledge base as a result of variety of cultural experiences.

The absence of agreement into the specific influence of cultural differences on CDM implies that actual situation on the ground during emergency response together with the CDM leadership may also determine whether the diversities will influence positively or negatively. This is because in most cases, disaster scenarios do not give room for people to form new creative processes at the onset, but upon interaction under guidance of an effective leader, the agencies through their representatives can take some time to reflect

on the progress as they seek new ways of tackling the matter at hand. This means that during the onset of the collaborations, the differences are likely to influence CDM negatively, but as time goes by and the most pressing needs are addressed, then the diversities can be negotiated to bring out new and innovative ways.

During interview with one of the key informant KIR12, the following was noted concerning agency cultures;

> Differences in agency cultures have been a thorny issue during CDM for a long time, we could meet in a disaster scenario and fail to achieve a common goal because agencies could insist on their own ways of doing things. But nowadays and especially after the Westgate Mall terrorist attack on 21st September 2013, we have had improvements, we have leant to accommodate each other's different ways of working, this is because we cannot all think and work in the same manner. Also, we have leant to use the differences and come up with innovative ways as a result of the divergent views, though its time consuming, but at the end we all come up with one good idea which helps us in attaining our goal, even though it does not work all the times (Respondent KIR 12).

From the qualitative interview, differences in agency cultures appears to have been a significant determinant of collaborative success, where difficulties during CDM have been as a result of failing to accommodate divergence in views and lack of consensus on which way to operate. According to the respondent, the adverse effects of conflicts as a result of cultural diversities during CDM can be mitigated by increasing opportunities of agency interaction through series of meetings, workshops and joint trainings.

The respondents were asked their level of agreement with the statement that differences in agency cultures are unhealthy and impede innovation during CDM. From the study findings as indicated in Table 4.8, majority (75.2%) of respondents

agree that during CDM, conflicting agency cultures are unhealthy and impedes innovation, 15.8 percent of the respondents strongly agree that conflicting cultures of participating agencies during CDM are unhealthy and do impede innovation. 3.8 percent of the respondents were undecided whether conflicting cultures of different agencies during CDM are unhealthy and impedes innovation, respondents who disagree were 4.9 percent while 0.4 percent of the respondents strongly disagree that conflicting cultures of participating agencies are unhealthy and impede innovation during CDM.

By having 75.2 percent of respondents indicating to agree that differences in agency cultures are unhealthy, this means that agencies are likely to fail to adopt or agree on which way to operate due to such differences. As a result, the participating agencies end up sticking to their original own ways of operating which inhibit innovation during CDM, hence unhealthy. Innovation during CDM comes from the cross pollination of ideas and adoption of new ways of operating, therefore, if agencies during CDM do not adopt new ways of working, CDM effectiveness will be impacted negatively due to lack of innovation.

The study finding support Petcha (2013) findings that conflicting agency cultures results to frustrations in attaining common goals during CDM where as a result of lack of consensus on what ways to adopt, each agency pursues their own goals. From the interview with KIR7 on whether conflicting agency cultures during CDM are unhealthy and impedes innovation, the following response was obtained.

> When we have our agency cultures conflicts during CDM, we have problems in agreeing on common ways of working together, this is because each agency wants to do things in their own ways. As a result, it becomes difficulty to attain common goals and even sometimes we start competing amongst ourselves. (Respondent KIR 7).

From KII 7, failing to reach consensus on common ways of working results to tendencies by agencies doing things their way. If agencies result to this, it means that there will be lack of common understanding to the situation at hand, there will be lack of joint decision making and also this will impact on knowledge and information sharing, hence results to distraction and negatively influences CDM. However, where the diversities in cultures are managed well, then this is a source of strength due to the rich base in ideas from different sectors hence resulting to innovation.

The level of agreement with the statement that differences in agency beliefs, values and philosophies influence CDM was sought and the study findings presented in Table 4.8, the findings indicate that majority (75.6%) of the respondents were of the opinion that differences in agency beliefs, values and philosophies influences CDM, 15.8 percent of the respondents strongly agree while 4.5 percent were undecided whether the differences in agency beliefs, values and philosophies influenced CDM. 0.4 percent of the respondents strongly disagree while 4.5 percent disagree.

Agency beliefs, values and philosophies as a variable had a mean of 4.05 and a SD of 0.55. Beliefs can be explained as what individuals hold as true, it expresses thoughts formed by human beings (Pehkonen &Pletila, 2003). This implies that the subjective judgments concerning some aspect of self or the environment around us. Values are internalized cognitive structures that guide choices individuals make, motivate people to

act in one way or another, act as guide for human behaviours while organizational philosophies describe how organizations operate and are organized to meet goals, that is, organizational philosophies help individuals within such organizations to understand the goals and values they are working towards.

Difference in agency beliefs, values and philosophies during CDM would therefore imply that individuals will have different perspectives of what the problem is, depict different behaviors, judge issues or situations differently and understand goals differently based on their organizations or agencies they came from. Holding different values, beliefs and philosophies may result to individuals during collaborations being suspicious of others, set stage for frictions, lack of order, resistant to change and also lack of consensual harmony during IA interactions. Resistant to change implies lack of innovations as individuals are not ready to change their way of doing things, lack of consensus implies absence of shared understanding to problems, suspicions during IA interactions results to lack of trust. Hence the reason for having 75.6 percent of respondents indicating to agree that differences in organizational beliefs, values and philosophies influences effectiveness of CDM.

Diversity in agencies values, philosophies and beliefs may however be managed to broaden collaborative groups' perspectives which according to Ozbilgin & Tatli (2008) improves performance of the multidisciplinary teams. Also, as members became more familiar with each other's perspectives and develop transactive memories, this can help in creating abilities by individuals to embrace inclusiveness. Reducing prejudices, avoiding use of stereotypes and recognizing that diversity exists and learning to value and

respect differences is a good way of mitigating such differences for effectiveness of CDM arrangements. The study finding support Torlak (2004) who noted that many of barriers in CDM concern cognitive systems in the values and belief systems of DM personnel.

According to Sanne (2012), the tendency by individuals to strongly stick to their organizations beliefs, values and philosophies even causes them to miss some important experiences and lessons from disaster events which eventually results to DM leaders to repeat same errors resulting in future vulnerabilities. Observation by Torlak (2004) and Sanne (2012) strongly indicates that agency beliefs, values and philosophies are so embedded in the way agency leaders and personnel act and that they greatly influence the outcome of CDM arrangements. Rigidity of core beliefs and values means that DMA leaders tend to absorb those pieces of information that fit in their own beliefs and disregard information that does not, and stick to actions that uphold their belief systems. The findings however contradicts observations by Van Der Vegt & Buderson (2005) who noted that moderate levels of diversity to be associated with team performance during multidisciplinary teams. In responding to how having differences in agency values, beliefs and philosophies influences CDM effectiveness, KIR15 had this to say;

> The values, beliefs and philosophies we have strongly put us together as an agency, they influence the way we behave and portray ourselves, this influences collaborations in a big way as in most time we strive to maintain that all throughout the collaboration process. Remember we are the image of our agencies (Respondent KIR15).

From KIR 15 interview, agencies values, beliefs and philosophies create a sense of oneness or strong bond and cohesion in an agency or amongst members of a specific agency. Values, beliefs and philosophies individuals from different agencies hold

determines how such individuals will behave and portray themselves during the collaborations. During the interview, it also came out that individuals while collaborating strives to maintain their identity by sticking to their values, beliefs and philosophies throughout the collaboration. This lack in readiness to compromise agencies values, beliefs and philosophies during CDM implies limited innovations in how the IA groups approach situations.

The strong bond created by agencies values, beliefs and philosophies resulting to oneness within an agency may imply limited interactions between the agencies, as members reduced affinity to associate with members from different agencies. Reduced interaction by members from different agencies means limited sharing of information, knowledge, low levels of trust between different agencies. This influences CDM effectiveness by affecting the attainment of the goals. This finding from the key informant corroborates the study finding, and support observations by Torlak (2004) and Sanne (2012). Even though the study finding largely indicate the influence to be negative, it is important It is important to that the differences in agency beliefs, values and philosophies by themselves may not be harmful, rather the rigidity or tendency by different agencies to stick to them and fail to adopt news of doing things so as to maintain the status quo.

The respondents were further asked whether agency beliefs, values and philosophies influence how individuals perceives others, the study finding as presented in Table 4.8 indicates that majority (70.3%) of respondents agree that beliefs, values and philosophies held by agencies influences how individuals perceived others during CDM, with 20.3 percent of respondents strongly agree. Only a small number (5%) of respondents

indicated that agency beliefs, values and philosophies do not influence how individuals perceive others during CDM. Approximately 6 percent were undecided while 0.4 strongly disagreed.

Agency beliefs, values and philosophies determines what individuals from the agencies hold to be true or real, the thoughts they form, how they make judgments alongside guiding how such individuals operate. This has got implications on how individuals during collaborative arrangements perceive others, this is because how individuals see the world around them is dependent upon sensory inputs, which are affected by values and beliefs. Beliefs and values shape the way people perceive their self and others, therefore agencies beliefs, values and philosophies determines greatly hoe individuals during CDM perceive other, hence the reason for having the majority of respondents (70.3%) indicating to agree.

The finding corroborates observations noted by Sanne (2012) that organizations beliefs and values heavily determines how individuals from such organizations perceive others and even influence the way they interpret situations. KIR9 while making contribution on the influence of agency values, beliefs and philosophies on CDM had this to say;

> Agency values, beliefs and philosophies has a lot of influence in the way we think and act, this also influences how we see and perceive those whom we are working with during the collaborations (Respondent KIR9).

From the interview with KIR9, agency beliefs, values and philosophies are key in determining how individuals collectively think and act during CDM, this is because individuals are predisposed to adopt values from immediate environment. By determining how individuals think and act, it affects their judgment over others, hence influencing

how they perceive others during collaborations. Even though the finding from the key informant corroborates study finding by supporting that agency beliefs, values and philosophies determine how individuals perceive others, it is important to note that there are other factors that can determine how individuals perceive others during CDM, for instance past history of success in working collaboratively will influence individual perception towards others.

4.2.2 Agency Polices: Strucutres, procedures, Goals, Missions and Mandates

Respondents were asked whether agency Policies, structures and procedures of participating agencies influence CDM. Subsequently the study findings as presented in Table 4.8 indicate that majority (60.3%) of the respondents agree that policies, procedures and structures of participating agencies influences CDM, 20.3 percent of the respondents strongly agree policies influences CDM while 2.1 percent of respondents were undecided whether agency policies of participating agencies have any influence on CDM. Only 9.8 percent of the respondents disagreed that polices of agencies participating in CDM influences the performance of such arrangement while 7percent strongly disagreed.

A policy is a predetermined course of action established by agencies to guide towards strategies, objectives and goals, structures, procedures and decision making (Manghani, 2011). This implies binding rules and regulations followed by individuals within an organization to achieve smooth running, to ingrain values and norms that contribute to the culture of the organization, form boundaries for acceptable behaviour within the workplace. By having majority of respondents (67.3%) agreeing while 29.3 percent strongly agreeing that agency policies influence CDM implies that if an agency has a

policy supporting collaborations during DM, such policy defines strategies, structures and procedures to put in place towards attaining successful collaborations.

The agency policy will help set and defines the agencies boundaries for acceptable practices, guide how such collaborations will be undertaken and above all facilitate successful delivery of required results, thereby influencing CDM effectiveness positively. Absence of a policy by an agency on collaborations implies that such an agency will approach collaborations without a blueprint, characterized by absence of predetermined structures or procedures on how it will achieve collaborations during CDM. This will result to confusions and conflicts between the participating agencies, thereby influencing CDM effectiveness negatively.

The study finding on policies is consistent with study finding from Molenveld, Voorberg, VanBurren & Hagen (2021) which noted polices to have influence on collaborations success. It is also important to note that presence of an agency policy on collaborations may not automatically imply positive influence on effectiveness of CDM. This is because the agency may be collaborating with other agencies which do not have polices to guide them or with agencies having incompatible policies. Asked for view on the influence of agency policies, structures and procedures on CDM, one of the key informant KIR16 narrated the following;

> Having a policy on collaborations as an agency is very important because such will define how you will relate with other agencies during collaboration and define your roles while collaborating. The challenges comes because of differences in agency structures and procedures, for instance where our mode of operandis are in most cases different with how majority of responding agencies operate, we are structured to be self sustaining whenever called upon in an operation in terms of our welfare,

> this has seen us take the bulk of most work and responsibilities of taking care of others during CDM. (Respondent KIR 16).

From the foregoing, it is evident that agency policies are good management tools which influence CDM by defining how the agencies will engage other participants, guide on the strategies towards obtaining results. If agencies have proper working procedures and good policies in place, this positively influences CDM, while lack of proper working structures and procedures will result to overburdening one or a few of the DMA which greatly affects CDM negatively.

Asked whether there is need have a overall policy to guide CDM activities, majority of the respondents 60.9 percent strongly agreed that there is need to have a policy to guide CDM. At the same time, 20.5 percent of the respondents agreed that there is need for development of policy to guide how agencies should collaborate during DM, while 7.5 percent of the respondents were undecided on whether there is need to have a policy in place to guide CDM. The need to have an overall policy to guide CDM variable had a mean of 4.65 and SD of 0.51.

By having majority of respondents (60.9%) indicating to strongly agree that there is need to have a overall policy to guide collaborations implies that existence of a policy to guide Collaborations is key to determining it success. Having a policy on how collaborations in the country will be managed means clear defined roles for DMA, clarity on how such collaborations are initiated, developed, governed and sustained to achieve results..The study finding is consistent with a study by Ndar (2019) on critical analysis of Kenya's

DRM Strategy which concluded that there is need for proper policy to guide DM mechanisms in the country.

The study finding is further consistent with the Sendai Framework for Disaster Risk Reduction 2015-2030 priority number two on strengthening disaster risk which advocates for coherence of national and local frameworks of laws, regulations and public policies to guide public and private sectors in taking action to address DM at the national and local level. On the need to have a policy to guide CDM in the country, key informant KIR5 narrated the following;

> I strongly believe that having a policy to guide CDM in the country is the right decision, because, the current policy framework only advocates for collaborations between agencies but does not provide for how such should be arrived at and managed. Therefore, having one with provisions on how CDM is to be managed will help bring uniformity, order and centrality in how collaborations during disaster response are managed. Also, this will help in domesticating the Incident Command System (ICS) which is a foreign concept and eventually improve interoperability. In fact, the National Disaster Management Authority Bill is almost ready and has all these provisions and is all we have been waiting for to bring such much awaited order in CDM (Respondent KIR5).

From the qualitative data above, it implies that there has been a policy framework in place regarding DM which advocates for IAC in management of disasters in the country. However, it came out clear that such policy framework has not been effective in guiding collaborations in the country, this is because it merely advocate for collaborations but not conclusive on how such should be established, governed and sustained. Further, the respondent (KIR5) noted that the National Disaster Management Authority Bill is almost ready and has all the provisions to bring order in the way collaborations should be managed in the country. From the study finding, there has been existence of policy

framework advocating for CDM, but what has been lacking is a proper one articulating on how CDM is to be achieved and managed.

Respondents were asked whether differences in goals, missions and mandates of their agencies influences collaborations during DM, and the study findings as presented in Table 4.8 indicate that majority (70.4%) of the respondents agree that differences in agency goals, missions and mandates influences CDM while 20.9 percent strongly agree. Those who were undecided whether differences in agency goals, missions and mandates influences CDM were 3.8 percent, only a few respondents (2.5%) disagree that differences in goals, missions and mandates of agencies involved in DM influences CDM while 1.4 strongly disagreed. Differences in agency goals, missions and mandates as variable had a mean of 4.16 and SD of 0.55.

By having 70.4 percent indicating to agree with the statement that agency differences influences CDM effectiveness, it implies that there need to take into considerations differences in agencies goals and missions as they influence CDM. This is because if the participating agencies approach collaborations with different goals and missions to achieve, this will adversely affect the effectiveness of CDM. For instance, if during collaborative disaster response for flooding in a coastal town as a result of hurricane involving state agencies whose mission is to relocate such populations while the non state actors in such collaborations have the missions to rebuild new structures for the affected populations. In such collaborations characterized with differences in missions and goals, CDM effectiveness will be adversely impacted. The study finding collaborate

observations by Beck and Plowman (2014) who noted that differences in organizational goals and missions' influences negatively collaborative response to disasters.

The study finding is also in line with observations by Casey, McCartha and Steelman (2015) who noted that diversities in organizational missions and goals create tensions during IA relationships, such tensions as a result of differences in agency goals and missions affect common problem space, joint decision making and also lead to agency goal directed which greatly influences CDM. However, it is not in all cases that diversities in agency goals, missions and mandates results to negative influence towards CDM success.

Diversities in organizational goals, missions and mandates during CDM implies different resources and expertise which are key in achieving CDM. For instance, during collaborative response in case of a collapsed building, presence of paramedics, police officers, the military, NYS, private disaster response all having different goals and mandates means that the military will embark on evacuating casualties, paramedics will specialize in taking them to hospital, the police provide security as they secure the scene. Therefore, diversities in goals and missions is not inherently harmful during CDM. During interaction with key respondent KIR14 on diversities on goals, missions and mandates during CDM, the following observation was made;

> Agency goals, missions and mandates influence CDM a lot, for instance, if we have differences as a result of our agency goals, missions and mandates, this affects how we interact and also teamwork among the different agencies. As a result, if the differences are not managed properly, agencies start working towards achieving their own goals, competition come in, supremacy battles and even conflict emerge. This greatly affects CDM negatively. A good example is during slums fires where we respond

> with relief aid to the victims and mobilize for them to have new buildings or structures, but the goal of the national government in most cases is to have such people relocated which in most cases contradicts the goal of most NGO's of resettling the victims in their inhabitants (Respondent KIR14).

Differences in agency goals, missions and mandates from the participating agencies as noted by KIR 14 influences CDM effectiveness. Such differences according to KIR 14 lead to conflicting interests, different in approaches, differences in perspectives and different ways of understanding the situation. If participating agencies as a result of differences in goals and missions do not agree on approaches and strategies, lack common understanding to the problem. This affects joint decision making, leads to the agencies competing to outshine each other and also power asymmetries where each agency work towards goal directed behavior and justifying their course, thus making attainment of collaborative goals difficult.

As noted by KII 14, there is need to manage goals and missions differences during CDM by ensuring that agencies participating in such collaborative arrangements pursues same goals or by taking advantage of the differences in allocation of roles and responsibilities. This will to timely response, increased interaction, common understanding to the problem and joint decision making, thus influencing CDM positively. However, the study finding is not consistent with Guimera et al., 2005 who noted that goal differences are essential in that they provide valuable ways of dealing with problems.

According to Flemming et al 2015, agencies goal differences are not inherently undesirable. According to observations by Guimera et al. (2005) and Flemming et al. (2015), having differences in goals and missions during CDM is not a problem, rather

how such differences are handled. If collaborative leadership considers diversities in goals and missions as important source of resources and ideas into achieving goals and objectives, then this will positively impact on the effectiveness of CDM.

The respondent's level of agreement was sought on the need for agencies to align their agency missions and goals during CDM, and the study finding as presented in Table 4.8 indicate that majority (58.9%) of the respondents agree that there is need to for agencies participating in CDM to align their missions and goals while 30.5 percent of the respondents strongly agree that there is need for mission and goal alignment. Only a few (1.8%) of the respondents strongly disagree on the need for agencies to align their missions and goals during CDM, 6 percent undecided while 2.8 disagreed. Need to align missions and goals for different agencies during CDM as a variable had a mean of 4.32 and SD of 0.59. Mission alignment means placing each agencies missions into proper position or a state of agreement among different agencies with a common cause enabling shared common values. Mission alignment during CDM enables agencies to act on one vision or goal.

Having majority (58.9 %) agreeing and 30.5 percent strongly agreeing on the need for mission and goals alignment during CDM implies the crucial role mission alignment plays in collaborative success. By enabling sharing and adoption of similar values, this means having a shared way of approaching and understanding of problems, implies agencies will allocate more resources and there will be fewer incompatibilities throughout the relationships, hence need for missions and goals alignment. However, alignment of goals and missions during collaborations is only possible when participating partners

share much in terms of culture, views, mindsets and even professional languages and practices. If the agencies tend to share less, then such alignment may not be possible and will imply poor stakeholder engagements during the collaborations.

The study finding is supported by a study by Provan & Kenis (2007) who noted that mission and goal alignment sustain collaborative practices, and another study by Provan & Lemaire (2012) who also noted that by aligning their goals and missions, agencies are more likely to arrive at consensus characterized by common understanding of the problems, that greatly influences CDM positively. The study findings by Kapucu, Garayev & Wang (2013) noted that alignment of mission and goals by DMA help sustain collaboration networks for longer by ensuring that there are few incompatibilities, shared values which mean adoption of similar ways of doing things, resulting to more stable and effective CDM arrangements. Gray and Purdy (2018) in their study attributed difficulties in collaborations to lack of goal alignment among partners.

The study finding and corroborating literature indicates that there is need to align agencies missions and goals, but the urgency of demand for disaster response may not allow for such as a priority at the onset of the disaster, and also disaster response agencies do not get to a disaster scene at the same time. Thus, goal and mission alignment should be an ongoing improvement process which should be undertaken when the initial collaborations have already started to improve and sustain collaborative processes.

The importance of aligning goal, missions and mandates was also revealed during interaction with key informant KIR6 who narrated the following;

> To avoid a situation where each agency wants to work towards achieving their own goals, we have realized that it is important when we meet during disaster scenarios to spare some times and set joint goals to pursue as a team, essentially this is the work of the in-charge incident command post or the overall leader of the collaborative arrangement. Failing to do this in most cases as has always taken us into circles of competition amongst ourselves (Respondent KIR6).

Goals and mission alignment is a critical element of success for CDM arrangements as noted by KIR 6, this is because it prevent agencies goal directed behaviours. It is important to note that the alignment it is dependent upon the overall leadership to convene such an opportunity with agency representatives at the incident command post to align the missions and goals, while the response work is still ongoing. However, opportunities for discussing and aligning goals and missions are scarce especially during the response phase where time is of essence, other phases of DM like mitigation and preparedness may allow for participating agencies to align their missions and goals.

4.2.3 Agency Commitment and Perceived Roles in Collaborations

The study sought to find out whether agency commitment influences CDM, and the findings as indicated in Table 4.8, shows that majority (60.3%) of respondents agree that agency commitment influences CDM, while 24.7 percent of respondents strongly agree. Respondents who were undecided were 7.5 percent, only 1.1percent of the respondents disagree that agency commitment influences CDM, with 1.4 percent strongly disagree that agency commitment influences CDM. Agencies commitment as an indicator of CDM effectiveness had a mean of 4.25 and SD of 0.58, this implies that commitment by agencies influences CDM effectiveness. By having 60.3 percent agreeing and 24.7 strongly agreeing that commitment by agencies participating in a collaborative

arrangement influence its effectiveness, highly suggesting that agency commitment greatly influences CDM effectiveness.

This is because commitment by agencies would mean support in terms of resources and time form the agencies leadership, readiness to compromise on agencies beliefs and values which will facilitate building of consensus amongst the agencies during collaborations. Also, commitment implies buy in of an idea, results to emotional attachment towards an activity or something by individuals, may result to influencing behaviours and perception. Hence presence of agency commitment during CDM is crucial to wards attainment of goals, lack of it may even result to collapsing of the arrangement.

The finding of the study is consistent with the study findings by Jung & Song (2018) who carried out a study on the impact of strong commitment on disaster resilience, case of 2012 Korean typhoons, and concluded that strong commitment by disaster management agencies and members of community influences CDM positively. The study finding also support findings by Gieske, Van Meerkerk and Van Buuren (2020) which noted that goal committed individuals try harder, persists for longer and innovate more, thus influencing collaborative process positively. Lack of commitment during collaborations according to Liu, Wu,Yi and Wen (2021) negatively influences collaboration, where as a result, members within such arrangement do not devote enough time, energy, required resources. This affects joint working, problem understanding and sharing of resources as some agencies will feel to be contributing more towards the process. During interview, KIR10 had the following to say concerning agency;

> By having agencies leaving us alone to continue with search and rescue, this affects our morale greatly, also we have seen cases where agencies top leadership dispatch men on ground and they don't offer any welfare support thereafter. To the officers sent to the ground, they see this as *kutupwa* (being thrown) and that their seniors are not committed to their plight at work. This affects CDM greatly by having officers who are present physically but not commitment to working to attain common a goal (Respondent KIR10.

From the study finding, it is evident that when you have some agencies that are not committed towards CDM, this greatly affects those who are committed by overburdening them with a lot of work. It also came out that commitment starts from top agency leadership, since there are scenarios where agencies top leadership send their men to the disaster site without proper arrangement on how their welfare during such arrangements will b taken care, this amounts to lack of commitment which negatively influence CDM. The respondents were further asked to indicate their level of agreement with the statement whether how agencies perceive their roles during collaboration influences their commitment level towards collaboration.

The study finding as presented in Table 4.8, show that majority (61.2%) of the respondents agree that how agencies perceives roles assigned to perform during collaborations influences their commitment levels towards collaborations, those who strongly agree are 30.7 percent of the respondents while 0.4 percent of the respondents strongly disagree. Agencies perception on roles as an indicator for commitment had a mean of 4.28 and SD of 0.57. By having majority of respondents (61.2%) agreeing that how agencies perceive roles assigned to them during collaborations influences their commitment level mean that there is need to consider how roles and responsibilities are assigned during IA collaborations. If agencies or individuals are assigned roles that which

they are not familiar with, this would mean difficulties in executing such duties and will lower their morale which will affect their commitment levels towards such collaborations. The finding is supported by one of the key informant KIR3 who had this to say;

> During collaborative response to previous terror attacks in the country, we have experienced situations whereby when some agencies are redeployed from their previous assignment and positions and their roles taken over by other agencies. They perceive this as *madharau* (demeaning). This affects the agencies commitment towards attaining common goals of such operations, in some occasions agencies even pulled off from collaborative operations. KIR3).

The qualitative data above implies that there are duties during collaborations which agencies would prefer to be deployed, failure to meet their expectations causes the agencies to feel demeaned. It also brings other dimensions of power asymmetries where some agencies approach the collaborations with fixed mindsets that they are the best in handling some roles. In assigning roles and responsibilities during collaborations, considerations should be based on areas of expertise, and where agencies participating in such collaborations shares areas of expertise, then there should be readiness by the agencies complement each other.

For instance, during corroborative response to terror attacks, the police and the military should complement each other in efforts to evacuate persons inside buildings and neutralizing attackers, the Kenya Red Cross and ST. Johns Ambulance plus other private and county ambulances all should complement one another in rushing injured person to hospital, the same should be the case for fire services. Also from the qualitative interview, allocation of roles and responsibilities during collaborative disaster management appears to be determined by the top collaboration leadership, in this case the state coordinative

machineries. This might also bring issues of exclusion of non-state actors in decision making further affecting commitment level by such agencies, however, the respondent case was special in that it involved a pure security operation.

The respondent's level of agreement was further sought on whether inclusion of agencies in decision making result to more commitment by the agencies towards CDM. The study finding as indicated in Table 4.8 show that 51.9 percent of the respondents agree while 44.7 percent of the respondents strongly agree that agency inclusion in decision making during CDM influences agencies commitment. Inclusion in this study was conceptualized to mean encompassing wide range of stakeholders and perspectives from different stakeholders. The implication of having majority (51.9 %) agreeing and 44.7 percent strongly agreeing on inclusion of agencies during CDM to influence commitment means that collaborative leadership should encourage inclusion since it has a bearing on level of commitment by agencies. This is because by inclusion of stakeholders enhances discursive representation, foster legitimacy and provide opportunity agencies participation in decision making.

By fostering legitimacy and opportunities to participate in decision making, participating agencies will feel more bounded by decisions made, this will result to them being more committed. Also, inclusion will make agencies feel more valued, which will influence their commitment levels towards collaborative processes positively. Failing to include stake holders in decision making will affect commitment in that agencies not included will not feel to bounded by passed deliberations, may result to agencies pulling off from collaborations and also agencies feeling devalued. This negatively influences levels of

agencies participating in CDM. However, greater inclusion of agencies during decision making may also influence commitment negatively, this is because achieving consensus becomes difficult and may also produce instability in the collaborative process.

Lack of consensus as a result of greater inclusion will impact on commitment where agencies whose ideas will not be taken into considerations may be reluctant to implement the deliberations. Also, the instability in the collaborative network as a result of greater inclusion will mean less involvement of some stakeholders of increase in conflicts, this adversely impact on commitment. The finding on whether inclusion of agencies during CDM impacts on commitment level of agencies support study finding by Sorensen & Torfing (2018) who concluded that inclusion in collaborative governance during emergency management is inherently desirable and enhances participation which greatly influences the outcome of the collaborations.

This study finding is also supported by Innes & Booher (2018) who noted that failing to include all key stakeholders undermine effectiveness of collaborations, since it forsakes valuable resources and knowledge, greatly influencing on collaborations success. This is because agencies whose valuable resources, ideas and knowledge are not taken into considerations in decision making may end up being less committed during implementation of the deliberated decisions. The study finding supporting inclusion of agencies in decision making is however inconsistent with the findings of a study by Ulibarri & Scott (2017) which noted that greater inclusion in collaboration process reduces quality of deliberation, results to muddy negotiations making collective problem solving unattainable. The study findings by Choi & Robertson (2019) also contradicts

this study finding by indicating that achieving consensus when large participants are included in decision making, take more effort, time and is also risk. Observations by Ulibarri & Scott (2017) and by Choi & Robertson (2019) implies reduced levels of commitment by agencies since there will be lack of consensus on what ways to adopt and the muddy negotiations may result to conflicts in the collaborative network, which would again affect interactions between agencies negatively, hence less commitment levels by agencies.

From the study finding, there is a contradiction on inclusion of agencies present in decision making. The inclusion of agencies representative is not a bad idea during CDM, but there are scenarios when there are too many agencies present in a disaster scene, and this necessitate only those who are key to be included in decision making so as to reach consensus easily. While contributing on inclusion, key informant KIR14 had this to say;

> Sometimes, we move into a disaster site and the number of responding agencies is too high such that they cannot all be included at the decision-making table at the incident command post. This is usually a dilemma on the part of the Incident Commander on who to include and not to include yet inclusion is very important (Respondent KIR14).

From the study finding, collaborations can be more successful if inclusion is achieved, but done strategically so as to avoid increasing numbers of potentially uncooperative participants and also to make the process of decision making easier for CDM, though the CDM leader should be very careful while making such decisions. The inclusion can be in the form of clusters where agencies can be grouped in clusters depending on their sector of expertise and one representative from each cluster included to represent the sector.

4.3 Human Dynamics and Collaborative Disaster Management

This section presents study findings, analysis and interpretation of data related to the second specific objective of the study which was to examine HD influence on the implementation of CDM arrangement. Analysis and presentation of findings in this section focus on the influence of various HD including trust, power asymmetries, individual perceptions, information sharing and communication on CDM. Table 4.9 below presents a summary of descriptive results for HD effects on CDM where SA-Strongly Agree, A-Agree, U- Undecided, D-Disagree, SD-Strongly Disagree.

Table 4.9: Descriptive Results Summary for HD effects on CDM

Statement	SA %	A %	U %	D %	SD %	MEAN	STD DEV
Trust influences CDM	29.7	67.3	1.5	1.10	0.40	4.64	0.62
For agencies to deliver during CDM trust is needed	44	43	3.8	5.8	3.8	4.18	1.00
Power asymmetries during CDM Influences its effectiveness	60.9	26	6	4	2.3	4.63	0.55
Power struggles during CDM result to unhealthy competition	74.7	20	3.5	1.4	0.4	4.73	0.50
Individuals past experiences influences effectiveness of CDM	25.7	63	6	4	0.8	4.23	0.56
CDM operations should Only include personnel with experience in collaborations	2.4	8	7.6	60.8	21.2	1.95	0.81
How individuals perceive others influence CDM	17.7	72.9	4.85	3.45	1.1	4.03	0.68
Individual perception of others during CDM determines level of trust on others	28.2	65	3	3	0.8	4.16	0.71
Information Sharing influences CDM	26.3	71	1.5	0.8	0.4	4.67	0.61
Lack of information sharing during CDM impedes decision making	38	57	2.5	1.5	0.5	4.45	0.61
Communication influences CDM implementation	25.3	69	2	1.7	0.4	4.08	0.55

Source: Field Data (2021).

4.3.1 Trust and power assymetries

The researcher sought to examine whether trust and power dynamics impact on the implementation of CDM. Respondents were asked whether trust influences CDM implementation, and from the study findings as presented in Table 4.9, majority (67.3%) of the respondents strongly agree trust influences CDM. 29.7 percent of the respondents strongly agree trust influences implementation of CDM, those who disagree on trust having influence during implementation of CDM are 1.5 percent of the respondents with 0.4 percent strongly disagree. Trust variable had a mean of 4.64 and SD of 0.62.

By having majority (67.3%) of respondents strongly agreeing that trust influences CDM implementation, this implied the need for having trust both at individual and at agency level during collaborative arrangements. Trust in this study is conceptualized to mean a person's confidence in the reliability of another person to produce specific outcomes, where shared confidence held by members of a collaborative team constitutes inter-organizational trust. Presence of trust among participating individuals or agencies during CDM means lowered transactional costs, partners are able to predict others, there is knowledge and information exchange among members and also informal and interpersonal relationships among participants are developing. These imply development of a collaborative culture and building of social capital leading to successful collaborations.

The study finding strongly indicates that trust influence the implementation of CDM and is supported by Roud (2021) whose study noted that trust is a requisite and mediating variable that influence positively CDM, and is also consistent with a study finding by

Kucharska (2017) who noted that there is a strong correlation between trust and collaboration, while according to a study by Kinnear, Patison, Mann, Malone and Ross (2014), sharing resources and information during collaborative processes was observed to be associated with trust.

This finding is however inconsistent with the study finding by Tang, Shao, Zhou and Hu (2021) in their study on understanding collaborative process and its effect on perceived outcomes during emergency response in China where it was noted that trust building does not affect perceived outcomes significantly. Collaborative arrangements constituting of government sectors only are characterized by hierarchical and horizontal governance mechanisms provides for mandated interactions. in such scenarios, enhancing trust level among participating agencies may not lead to significant collaborative outcomes. The study finding by Tang et al (2021) did not rule out that trust influences CDM, but the influence according to their study was not that significant. During interaction with key informant KIR7 on trust, it came out that;

> Lack of trust during collaborations is mainly because of lack of knowledge or understanding of others capabilities. This greatly influences how we interact, share information and also many conflicts arise making CDM very difficult. If we meet with agencies whom we have knowledge of their strengths, then trusting them is easier and this makes CDM more effective (Respondent KIR 7).

The implication of this is that, having opportunities for agencies to learn each other's capabilities in handling matters related to DM will help in developing trust among the agencies. If agencies meet with prior knowledge of how each others are in managing situations, then this will determine whether to trust them or not. agencies trusting each

other during CDM mean increased interaction, sharing of information and minimal conflicts, this will lead to successful collaborations.

Another key informant KIR15 had this to say concerning trust and CDM

> It was very bad that during the Huruma building collapse, we struggled to get so many properties out of the disaster scene, but it was so bad that most of them got lost in the hands of those who were protecting and taking care of them, this greatly led to mistrust between us and the agency that was protecting the assets. The lack of trust led to almost no sharing of information and less interaction for the remaining days of the operation (Respondent KIR15).

Key informant KIR9 had this to say;

> During the JKIA fire incident in 2013, we were working with so many agencies to put of the fire and also ensure that property seized from the building was well kept. It later emerged that some personnel from some of the responding agencies were captured on camera by the media stealing those properties and even breaking into the duty-free shops to steal. This affected those of us who worked tirelessly during that incident and tainted the images of all agencies involved, and at the end of it all we were all blamed. This affected future interactions during subsequent fire incidents (Respondent KIR9).

The implication of the qualitative data obtained from KIR15 and KIR9 this is that, trust is also dependent upon previous performance of collaborations, that is, trust is an outcome of CDM. Where how collaborative arrangements perform determines trust in the subsequent collaborative arrangement. Mistrust comes as a result of bad past experience of working together between the agencies. Success in a CDM arrangement would mean that individuals will leave the scene satisfied, the satisfaction among the various participating individuals from different agencies positively influences their trust and perceptions on each other, during the subsequent CDM, such agencies would approach CDM with high levels of trust and positive perception about each other.

The respondents were asked whether for personnel from different agencies to deliver during CDM trust is needed and the findings as indicated in Table 4.9 show 44 percent of the respondents strongly agree, 43 percent agree while 3.8 percent were undecided, 5.8 percent of respondents disagree while 3.8 percent strongly disagree that personnel do not need to trust each so as to deliver. Trust as an indicator of delivery during CDM had a mean of 4.18 and SD of 1. Individuals trusting each other during CDM means that they will develop the right working attitudes, perceive teammates positively, engage and consult widely, this will improve decision making.

Information flow will also be enhanced if individuals trust each and increased interaction with minimal conflicts. All, these will enable them to deliver during CDM. However, having individuals from different agencies sharing same expertise during CDM who do not trust each other does not mean that they would not deliver, but it will effect on the quality of the final product or even difficulties in delivering, since in the event such individuals get stuck during CDM operations, they will find it difficult to consult from their team mates who they don't trust. The study finding is consistent with the findings by Curnin & O'Hara (2019) that trust is a critical component for individuals to deliver during response activities. During interview, key informant KIR2 explained the following concerning trust;

> If the participating agencies during the Westgate mall attack had trusted each other, then this would have ensured that they complement each other well and delivered. Failing to trust one another compromised the whole Westgate operation. In operations where we trust one another, it becomes easier to complement each other and integrate to work as a team. (Respondent KIR2)

The implication of the qualitative data above is that, by individuals trusting each other during CDM, they will be able to integrate easily, complement one another and share information, thus deliver during the collaborative process

Power asymmetries influence on the implementation of CDM was sought and the finding as indicated in Table 4.9 show that majority (60.9%) of the respondents strongly agree that power asymmetry indeed influences CDM. Respondent who agree were 26.8 percent,4 percent of the respondents disagree, .6 percent were undecided and 2.3 strongly disagreed. The reason for having majority of respondents (60.9%) indicating to agree that power asymmetries influences CDM is that, as a result of power imbalances, powerful agencies have got tendency to take control of collaborative arrangements.

In taking control of the arrangements, less powerful agencies are likely to be excluded in decision making, exclusion means that their ideas and knowledge will not be utilized. This results to lack of morale, denies the collaborative arrangement an opportunity to use the rich knowledge base and wide perspective of approaching issues. Also, power asymmetries result to less stakeholder engagement where participating individuals do not engage with each other properly or the engagement is skewed with the powerful or dominant agencies only directing others but not sharing. The finding corroborate study findings by Arai et al (2021) which noted that power asymmetries tend to undermine the effectiveness of collaborative processes, where the study noted that powerful actors tend to control the collaborative process and produce benefits for dominant groups with the less empowered stakeholders often ignored and deprived off opportunities to contribute meaningfully.

Further, the study finding is consistent with findings by Ran & Qi (2018) which concluded that imbalanced power asymmetries between stakeholders negatively influences collaborative process with strong parties taking up the initiative and excluding the weaker ones. This is against the principle of inclusivity which according to Rajala, Laihonen and Hapaala (2018) helps to create an opportunity for participants to identify and discuss actions needed to manage collaborations for successful outcomes. Therefore, the exclusion of weaker stakeholders as a result of imbalanced power asymmetries during collaborations denies them opportunities for discussing actions needed, thereby disadvantaging collaborations.

The respondents were asked whether struggle for power and superiority during CDM results to unhealthy competition, and the study finding presented in Table 4.9 indicate majority (74.7%) strongly agree and 22.0 percent of respondents agree that power struggles and superiority complexes amongst disaster management agencies results to unhealthy competition which greatly influences on its effectiveness. Only 1.4 percent of the respondents disagree, where to them struggle for power during CDM does not have any influence on the performance of CDM arrangements. Struggle for power and superiority was noted by majority of respondents (74.7%) to result to unhealthy competition because whenever agencies during CDM start competing for power, this result to conflicts, lack of information sharing as agencies would want to use the information they have at their disposal to outshine others, agency goal directed behaviours take precedent in place of collaborative goals.

The finding on whether power struggles lead to unhealthy competition between agencies is consistent with study finding by Dewulf and Elbers (2018) who noted that power asymmetries cause a wide range of undesirable consequences, including competition, low power actors being over ruled or even excluded by domain agencies in decision making process. Also, the finding is corroborated by Purdy (2021) who noted that power asymmetries result to lack of synergy, trust and creativity, greatly influencing the effectiveness of collaborative arrangements.

Levesque et al., (2017) noted that power equalization during collaborative process can be achieved through inclusion and valuing of ideas generated by other actors during decision making process. From the study finding, power asymmetries during collaborations influences greatly on the effectiveness of CDM negatively and that such power imbalances can be avoided if agencies learn to value each other's contribution and CDM leadership ensures that there is inclusion of agency representatives during decision making.

One of the key informant KIR2 narrated the following on power asymmetries;

> To me Westgate attack was a learning lesson and a great experience that whenever we meet as security agencies to work together in such scenarios, agencies need not to fight as to who will take control or be the in charge of the operation, since we all know our roles and responsibilities well, we should have symbiotic working relations and strive to complement each other. But what did we do during the attack? Competition as to who is highly trained, who is mandated by the Constitution to do what, failed to share information or even communicate amongst ourselves, top agencies leadership at the scene also did what? all because of supremacy, eventually we lost to the attackers (Respondent KIR2).

As noted by KIR 2, it is clear that whenever agencies during CDM start competing for power and control over the collaborative arrangements, this results to failure since such

agencies will not share the much needed information and knowledge or even communicate among themselves as they will be working towards outshining others. Also, collaborative leadership should ensure that there is harmony between participating agencies and that role clarity is clear and proper procedures of complementing each others are there. From the study finding, power asymmetries almost make CDM unattainable, hence there is need for agencies responding to disasters to value each other's contribution and appreciate that no agency has all what it takes to manage disasters alone.

4.3.2 Past Experiences and Individual Perception of others

The study asked the respondents whether individual past experiences in DM influences how CDM are implemented, and the finding as presented in Table 4.9 indicate that majority (63%) of the respondents agree and 25.7 percent strongly agree that individuals past experience has got influence on CDM while 4 percent of the respondents disagree and were of the opinion that past experience in DM has got no influence in CDM while 6 were undecided. Past experiences was noted by majority of respondents (63%) to influence how CDM are influenced, this is because previous engagements during CDM by individuals results to desirable or undesirable effects on participants depending on whether such CDM were successful or unsuccessful.

Previous successful past CDM arrangements will influence CDM implementation in that there will be already created and expanded networks, stakeholder's engagements, flow of information as a result of the preexisting relationships between the stakeholders will influence implementation positively. Previous past experience in failed CDM arrangement will mean disaster management agencies will engage each other in the

subsequent arrangements with caution, animosity, fixed mindsets, all this will adversely impact on sharing of information, trust, relationship building negatively impacting on implementation of CDM. However, lesson learned from previous past failed CDM can be used to improve future collaborations, therefore not all failed past collaborations would lead to negative impact on CDM implementation.

The study finding is supported by Cameron and Lart (2003) who in their study concluded that past history of working together influences performance of CDM. The finding is also corroborated by Chang (2012) who carried out a study on understanding cross sector collaborations in emergency management and noted that good past experience in collaboration results to building good relationships which positively influences CDM. Further, the study finding is consistent with findings by Mu, Jong and Koppenjan (2019) which noted that previous successful collaborative efforts results to putting policies and systems in place which positively influences future collaboration processes.

It is good to note that even unsuccessful collaborative experiences could still facilitate the formation of new collaborative relationships. This was the case with the failed Kenyas response to the Westgate mall attack of 2013, where the unsuccessful collaborative experience facilitated formation and restructuring of a new collaborative outfit between the various responding security agencies which led to a successful response to the 14 Riverside DusitD2 hotel attack 2019. The finding also corroborated findings by Couturier & Sklavounos (2019) which noted that partners with previous experience characterized by long history of distrust, conflict and disparity over years face challenges of building relationships for collaborations.

The study finding was also consistent with Grant & Hoover (2002) observations that history of joint collaborations influence trust amongst DMA, and this in turn impacts on the effectiveness of CDM arrangements. From the above finding, past experience is being noted to influence CDM, but past experience is in twofold, it can be a good or a bad past experience. The finding indicates good past experience as leading to good working relationships between agencies, which influences positively on CDM success. Agencies can also learn from bad past experience and improve from it. The above finding is also supported by key informant KIR8 who explained the following;

> If it were not for the past experience we had during the Westgate mall attacker operation, the Dusit-2 terror attack would not have been successful. I even wish we could not just be waiting to have such scenarios so as to respond together, rather could be organizing joint simulations for hostage taking and terror attacks and have many security agencies taking part so as to improve on our experience, understanding of each other's capacity and even trust (Respondent KIR 8).

Having bad previous experience as noted during the interview with KIR 8 can enable participating agencies to learn and appreciate others, this positive gesture as a result of bad experiences help in forming the right attitude towards others and developing trust. Having right attitude and trust during CDM contribute immensely on having the agencies share information, form joint decisions and common understanding to problem, thus influencing implementation of CDM positively. From the study finding, and corroborating data, past experience plays a key role in determining the success of CDM arrangement and that there is need to exploit on opportunities through which agencies could be meeting to improve on their experience with one another. This alongside improving their experience will go towards improving trust and knowledge of each other's capacity as well.

The respondents were further asked whether CDM operations should only include personnel with experience in collaborations, and the study finding as presented in Table 4.9 indicated that majority (60.8%) of the respondents disagree, with 21.2 percent strongly disagree and indicating that individuals with or without past experience in collaborations can be included in CDM operations. Approximately 5.6 percent of the respondents were undecided whether its only people who have past experience in collaborations should be included in CDM operation and 4.5 percent of respondents agree that only persons with past experience in collaborations should be included in CDM activities.

The implication of the findings is that there is need to include personnels with experience in CDM but this does not mean those individuals who have not been in such arrangements before should be excluded. Including individuals without prior experience in collaborations during CDM alongside other with experience will ensure continuity in future CDM operations. Though prior and past history of working in collaborations was noted by Chang (2012) as greatly influencing CDM, research findings indicated that 88 percent of the respondents were of the opinion that it is not a must that an individual must have prior experience so as to be included in CDM arrangement. Interaction with one of the key informant KIR7 revealed the following;

> It is good to have officers with prior experience in collaborations during CDM, but it is not a must that those deployed should be the ones with such experience. How will we develop new experiences if we don't include other personnel with general experience in DM? (Respondent KIR 7).

From the qualitative data above, developing individuals with knowledge and expertise in areas of CDM depend on inclusion of those without such experience in CDM arrangement

so that they can learn and acquire such experiences. From the study finding, individuals who have never worked in collaborative arrangements can be included and work alongside participants with prior experience, and this will ensure continuity of CDM in that we will be developing other individuals' capacity to engage in CDM**.**

The study sought from the respondents whether how individuals perceive others during collaborations influences implementation of CDM, and the findings presented in Table 4.9. Majority (72.9%) of respondents agreed while 17.7 percent strongly agree that how individuals perceive others during collaborations has got influence on the implementation of CDM. Approximately 3.45 percent of the respondents disagree and 1.1 percent of the respondents strongly disagree. By having majority of respondents (72.9%) agreeing and 17.7 percent strongly agreeing, it means that how individuals perceive others strongly influences how CDM are implemented. Individual perception of others during CDM determines the attitude they are going to form about others, values adoption by individuals during CDM, trust levels depend upon the perception individuals have over others.

The study finding on whether perception held by individuals and agencies towards others is corroborated by findings from a study by Kabra and Ramesh (2015) who noted that perceptions individuals and agencies have over others during collaborations greatly influences the effectiveness of such collaborations. Kabra and Ramesh (2015) further noted that if individuals have negative perception towards others, this impedes CDM. Where individuals perceive others positively, there is an increased participation towards success of CDM. According to Kahan, Jenkins and Braman individuals have tendency to

trust people they perceive to have shared values and distrust or reject information from those they perceive to oppose their values (2011).

Thus, individual perception of others during CDM is key in that how individuals perceive others greatly influence other factors which determine the success of CDM. While contributing on the influence of individual perception on others to CDM effectiveness, one of the key KIR13 revealed the following;

> There are cases whereby when we meet during collaborations those personnel from uniformed services start seeing us as *"raia"*(civilians) and in that case less trained. I remember one case during search and rescue operation for the Njambini air crash when we were about to start climbing the Aberdare mountains, I heard some uniformed men saying, *sasa hawa raia si watalemewa kupanda mlima waanze kutupatia kazi ya kuwabeba tena uko kwa milima".* (Now these civilians will be overwhelmed climbing up the mountain and will add more tasks of carrying them downhill again). To that group of officers, we were less experienced to climb mountain climbing simply because we were civilians, what they didn't know is that we had done special mountaineering course and Geographic Information System (GIS) application. During the mission it came out strongly that our group had the most experienced personnel in search and rescue operations despite being civilians (Respondent KIR 13)

How individuals perceive others during CDM as noted by KIR 13 set the stage for interactions, determines how consultations will be done, influences the level of trust to be placed on others. For instance, in this case, they determined the officers' level of trust on the civilians and this probably impeded sharing of information during the exercise. To the group or individuals being perceived with animosity or as inexperienced, this may result to being demoralized or even being more resilience to prove otherwise. Individual perception about others may not be static, rather changes as individuals continue to interact.

The respondents were further asked to indicate their level of agreement with the statement that individual perception of others during CDM determines the level of trust individuals place on others. Findings as presented in Table 4.9 shows majority (65%) of the respondents agree that level of trust is determined by how individuals perceive others and 28.2 percent strongly agree. Approximately 3 percent of the respondents disagree that how individuals perceive others does not determine or influence the level of trust. Individual perception as an indicator of trust level was noted by majority (65%), this is because if individuals during CDM perceive others as capable, then this means they will have confidence in their reliability to producing the desired outcomes, hence they will place high levels of trust on them.

The study finding is consistent with the findings by Grant & Hoover (2002) who noted that the level of trust is influenced by perception an individual has over others. Even though findings of the study and corroborating literature indicates strongly that the way an individual perceive others determines the level of trust they place on them, it is important to note that there are other factors that determines trust during CDM.

During interview interaction with one of the key informant KIR14 on individual perception and trust level, the following came out;

> During the Njambini plane crash, majority of uniformed personnel had no trust in us being civilians that we have crucial experience to help them in the mountain, yet our group comprised of first aiders and GIS specialist who could be of help, so all throughout the operations, they could only consult among themselves, until we reached a point when some of them developed mountain sickness and others experienced difficulties in breathing, that's when they started engaging with us (Respondent KIR 14).

From the above observation, the initial perception one has over other determines the level of trust to be placed. However, this may change as the individuals continue interacting. This study finding demonstrate that the perception an individual has over others, go a long way to determine the level of trust they put on them, and this greatly influence the CDM effectiveness by impeding on many factors like sharing of information, and having on board such individuals on the decision-making table.

It also important to note that it is not always that an individual will perceive others negatively, there are instances where individuals will have a positive perception about others, and this greatly improves on the many factors that determine CDM success. For instance, an individual with past history of relating well will perceive others positively and this may lead to the same good work relations being extended over to the new assignment, thereby influencing positively CDM.

4.3.3 Information Sharing and Communication

The researcher sought to examine whether information sharing influences CDM implementation, study findings as presented in Table 4.9 show that majority (26.3%) of the respondents strongly agreed that information sharing influences how CDM arrangements are implemented with 71 percent agreeing. Only 0.8 percent and 0.4 percent of the respondents strongly disagreed and disagreed respectively that information sharing influences CDM implementation. By having majority of respondent in the study agreeing and strongly agreeing that information sharing influences CDM implementation, this implies that sharing information during CDM implementation is key.

This is because shared information means improved decisions, shared understanding to problems, trust development and synchronization of CDM activities and increased interactions during CDM. The finding is consistent with finding by Co & Zhang (2011) who noted information sharing to influence CDM, further the finding corroborate findings by Shepherdson et al (2014) which identified information sharing as a tool to sustain and enhance effective collaboration.

Also the finding is consistent with findings from a study by Douglas and Schiffelers (2021) which noted that hoarding information influences collaborations negatively. This is because if agencies do not share information to their counterparts during CDM, this will lead to distrust and lack of coordination. Further the finding support findings by Cuganesan, Hart and Steel (2017) which noted information sharing to be an important aspect for establishing trust during collaborative processes which in turn influences collaborations positively. It is clear from the quantitative data above that presence of information sharing positively influence CDM effectiveness, the same is also true that lack of information during CDM greatly impact negatively on CDM effectiveness, by affecting other determinant factors like trust, joint decision making and communication.

On being asked whether lack of information sharing during CDM impede joint decision making, findings as presented in Table 4.9 show 38% of the respondents strongly agreed that lack of information during collaborative disaster management hinders joint decision. 57 percent of the respondents agreed that if agencies do not share information during CDM, this impedes joint decision making. Only 1.5 percent of the respondents disagreed

and were of the opinion that failing to share information does not hinder agencies from making joint decisions during collaborative disaster management.

Having majority of respondents (38%) strongly agreeing and 57 percent agreeing that lack of information sharing during CDM impedes joint decision making means that when agencies share information, this offers them an opportunity to different exchange views, knowledge and opinions concerning a matter which in turn result to them adopting common understanding. Therefore, lack of information sharing by agencies during CDM would mean agencies will not have an opportunity to exchange their views, knowledge and that they will approach CDM form agencies or individual agencies view points.

The study findings largely supported study by Kapucu (2005) who noted that information sharing allows collective decision making, further the finding corroborated findings by Price and Vojinovic (2008) who noted that information sharing during collaborations support joint decision making which ensures a common understanding to problems. From the study finding, if individuals during CDM do not share information, then this will greatly hinder joint decision making, in turn this will affect common understanding to problems. As a result, CDM implementation will be impacted negatively. During interview, lack of information sharing and joint decision making key informant KIR9 narrated the following;

> During CDM, if we don't share information, we encounter a lot of problems making goal attainment difficulty, for instance, lack of trust come in, agency start working to outshine each other, duplication or roles and even conflicts. But when we share information amongst ourselves, we increase interactions, team work and coordination and also device common understanding to the problem (Respondent KIR 9)

It is evident that much of problems during CDM implementation can be solved if agencies share information among themselves, as it is was noted by KIR 9 where failing to share information comes with other undesirable factors like lack of trust, lack of interactions, goal directed behaviour and poor decision making which work against CDM effectiveness.

On whether communication influences CDM implementation, finding as indicated in Table 4.9 show that majority (25.3%) strongly agree and 69 percent of the respondents agree that communication indeed influences CDM implementation. Only 0.4 percent of the respondents strongly disagree that communication does not influence CDM. By having majority of respondents agreeing that communication influences implementation of CDM means that, if there is effective communication during CDM implementation, participating agencies will be constantly being updated on any arising matter during CDM. Also there will be clear and easily accessible information resulting to information flow, more effective intervention as different agencies will be sharing on the best alternatives resulting to timely response, enhanced morale and also improved safety for participating agencies.

Lack of communication during CDM means difficulties in accessing information or provision of incorrect information, feelings of anger will crop in, disbelief and even conflict. Lack of collaborations will trigger actions that hinder good response during CDM, for instance creating situations for errors to occur, such errors during CDM have got potential to cause severe consequences. The study finding corroborates findings by Mu, Jong and Koppenjan (2019) which noted that collaborations require organizations to

open up to each other through communications as this improves performance of collaborative processes.

The finding also is consistent with McMaster Baber (2012) who noted that by reducing conflicts between participating agencies, communication greatly influences collaborations during disaster management. Key informant KIR8while contributing on the influence of communication on CDM implementation narrated the following;

> Failing to communicate amongst responding agencies during CDM has always costed us by causing lack of coordination, failing to have common understanding to the problem, poor decision making, lack of exchange of information, unfriendly working environment. If we can work out issues of superiority and trust amongst ourselves then it can be easier for us to communicate during collaborations, (Respondent KIR 8).

From the qualitative above, communication is observed to strongly influence implementation of CDM, where lack of it negatively affects CDM implementation by resulting to problems in how agencies coordinate. Presence of communication by agencies during CDM is being supported by findings to help in coordination, minimizing conflicts and creating a good environment for working. To improve communication between agencies during CDM implementation, there is need for agency interoperability, power equalization and cultivating trust. These can be achieved by having increased opportunities of interactions between various DMA.

4.4 Process Dynamics and Collaborative Disaster Management

This section presents study findings, analysis and discussions in relation to objective three, which was to evaluate the impacts of process dynamics on the effectiveness of CDM approach in the management of disasters within NCC, Kenya. Analysis will mainly

focus on how different PD impacts on the effectiveness of CDM approach as a strategy of managing disasters. PD which are going to be analyzed includes: leadership, collaboration capacity, role and responsibilities and shared understanding to problems. Table 4.10 below summarizes the descriptive results of PD impacts on CDM where SA-Strongly Agree A-Agree, U- Undecided, D-Disagree, SD-Strongly Disagree

Table 4.10: Descriptive Statistics result summary for Process Dynamics

Statement	SA %	A %	U %	D %	SD %	MEAN	STD DEV
Leadership influence CDM	75.6	14.7	3.0	4.50	2.20	4.80	0.45
Leaders to be effective need prior experiences in collaboration	24	72	1.3	2.3	0.4	4.17	0.59
Many leaders all coordinating a Single disaster complicates CDM	40.9	51.5	5	2.2	0.4	4.13	2.49
Agencies CC influences CDM	20.2	70	6	2.3	1.5	4.77	0.46
Agency CC is Influenced by their leaders	15.8	40.3	6.1	36.7	1.1	4.02	0.67
Role clarity influence CDM	85.1	9.8	1.3	2.25	1.5	4.88	0.39
Personnel's during CDM like roles which their well acquainted with	75	16.3	1.5	6	1.15	4.80	0.44
How individuals form relationships influence CDM	19.2	70	4	4.5	1.9	4.08	0.64
Prior interactions between DMA facilitates relationships	12.4	72	9	5.3	1.3	3.96	0.06
Individuals Must have prior interactions to form relations for CDM	1.6	3	6.3	71.4	17.7	1.91	0.59
Differences in how individuals understand a problem influence CDM	70	18.3	2.7	9	0.7	4.72	0.45
Joint decision making during CDM enables shared understanding	50	20	10	16	4	4.84	0.37

Source: Field Data (2021).

4.4.1 Leadership, Coordination and Collaboration Cpacity

The researcher sought to find out leadership influence on effectiveness of CDM approach in DM. Study finding as presented in Table 4.10 show that majority (75.6%) of the respondents strongly agree that leadership influences effectiveness of CDM approach, while 14.7 of the respondents agree, 3 percent were undecided. Only 4.5 percent of the respondents disagree that leadership has influence on effectiveness of CDM approach. By having leadership with a mean of 4.80 and SD of 0.45 and majority of respondents (75.6%) strongly agreeing that it influences effectiveness of CDM approach is a clear indication that leadership plays a very important role in ensuring success of CDM approach in DM.

For instance, Leaders during CDM motivate the participants towards working to attain a common goal, they help in diffusing tensions and in conflict resolution. Leaders ensures that there is effective communication, which is fast, reliable and timely to all participants which help in creating harmony between the different participants, hence influencing CDM approach greatly. Lack of effective leadership during CDM means disjointed strategies, poor coordination, lack of harmony, inter-agencies competition leading to goal directed behaviors, resultant effects being poor CDM. This study finding is corroborated by Emerson, Nabatchi & Balogh (2011) who noted that leadership influences effectiveness of CDM arrangements. This is further supported by Kapucu & Garayev (2013) who concluded that leadership is a success factor in CDM, they further noted that effective leadership where the leader acts as more of a facilitator influences positively CDM effectiveness. Also, the finding is supported by Kinder, Stenvall, Six and Memon

(2021) who noted that strong leaders during collaborations creates vision, provides motivation and report on success, positively influencing collaborations while according to Liu et al (2021) local leadership is paramount during CDM implementation. During interaction with key informant KIR11, the following came out;

> Leadership is very important during collaborative disaster response involving multiple agencies, I remember very well during an incidence within Nairobi involving a collapsed building where the person who was the in charge command post complicated the whole response exercise. He was making unilateral decisions without even consulting representatives of other responding agencies, this resulted to a lot of animosity, goal directed behaviours by agencies and lack of trust. As a result, the operation took too long. I also strongly believe that the mess that was at Westgate was as a result of poor collaborative leadership (Respondent KIR11).

This qualitative finding clearly demonstrate that if during CDM leadership is ineffective, where by leaders don't include representatives of agencies in decision making, then this results to lack of buy in of the ideas, resistant from agencies who are not included, it demoralizes participants, and affects command and control. By making unilateral decisions, it implies a narrow view of things which impacts on how participants sees and understand problems leading to lack of joint decisions. Trust and information flow during the process is affected which further affects CDM effectiveness.

The respondents were further asked whether leaders need to have prior experiences in collaborations so as to be effective during CDM, and the findings presented in Table 4.10 indicate majority (72.2%) of the respondents agree and 24 percent of the respondents strongly agree that leaders to be effective during CDM need to have prior experiences in collaborations, 2.3 percent of the respondents disagree that leaders need to have prior experiences in collaborations so as to be effective during CDM , while 0.4 percent of the

respondents strongly disagree that leaders to be effective need to have prior experience. Having prior experience in collaborations by leaders was noted lead to effectiveness in CDM, where majority (72.2%) indicated to agree. Previous experience contributes to leadership effectiveness by impacting on their self-perception and identity as leaders, helps develop their self-efficacy which in turn reflects on their confidence to exert control over situations. Previous experience also helps leaders to accumulate psychological and behavioral knowledge which is related to leadership.

The study finding is consistent with finding by Boin, Stern & Sundelius (2016) who noted that experience level influences leadership, further the study findings is supported by Moir (2016) who concluded that experience plays a significant role in collaborative leadership during disaster management. From the study finding and the corroborating literature, CDM leaders need to have adequate prior experience in managing collaborations. The study finding is also further supported by key informant KIR3 who explained the following;

> I strongly believe that in charges Incident Command Post should be people who are well experienced and possessing technical skills in the area of disaster collaborations, with right attitude and skills, critical thinkers, strong communication skills, social skills, be more of facilitators during implementation of CDM, failure to which CDM arrangement will not deliver good results (Respondent KIR3).

From the above qualitative data, overall collaborative leadership with technical skills means that such leaders will be able to over technical guidance on matters touching on collaborations during DM. By having the right attitude, collaborative leaders will influence participants behaviours, perception and attitudes toward the collaborative arrangement. Social skills will enable the leaders to communicate and interact with team

participants effectively and by being more of facilitators, the leaders will create a working environment that encourages participants and build their capacity. Leaders who are more of facilitators do not only focus on the immediate task but even future tasks, where participants in a collaborative arrangement are helped to learn together so they can become more productive in the future.

The respondents were asked whether presence of many leaders all coordinating a single disaster scene complicates CDM, finding as presented in Table 4.10 shows that majority (51.5%) of respondents agree that having many leaders all playing coordinative role in a single disaster scene complicates CDM, while 45.9 percent of the respondents agree that many leaders all coordinating a single disaster scene result to complications and affects command and control during CDM. Only 2.2 percent of the respondents disagree and according to them having many leaders all coordinating the same incident does not negatively influence effectiveness of CDM. Coordination is the ability to combine individual goals of different stakeholders in a collaborative network and focus on the tasks of the entire collaborative network.

By having many leaders all coordinating a single disaster scene will result to confusion at the command center. This will lead to lack of clarity in directives, result to chaos as different agencies will be taking different orders from different centers of powers. This will greatly affect communication and result to lack of harmony, negatively impacting on achieving common goals which is the main of coordination. Therefore, there is need to have a unified CDM command post, where leaders from different agencies participating in a CDM can complement one another.

The study finding is consistent with finding by Kettl (2003) who noted that during the World Trade Center attacks in the USA, there was coordination problems as a result of presence of NYPD and FDNY all playing commanding roles and due to bureaucratic competition could not agree which agency is to take lead role. Further, the finding support findings by Sri Lanka Disaster Management Center (2018) which noted that lack of clarity on leadership and coordination to negatively influence performance of CDM arrangements.

According to Sulaiman et al (2019) lack of coordination leads to a number of possible failures, inappropriate allocations of first responder resources and delayed evacuations which often results in crisis escalation and even higher number of casualties. This was the experience during the failed Westgate mall attack of 2013 where lack of coordination between the responding agencies resulted to higher number of casualties, inappropriate allocation of responders and delays in evacuations (Mwangi, 2019). While contributing on collaborative coordination during DM, key informant KIR4 explained the following;

> Lack of a single person manning collaborative disaster management command post has worsened how we collaborate. In some scenarios we have experienced top agencies leadership all at the command center and each want to be the overall instead of them complementing one another. As a result we are treated to a lot of dramas, competitions, lack of clear communication. (Respondent KIR 4).

Another Key informant had this to say on leadership and coordination during CDM;

> Presence of more than one national coordinative agencies if they do not complement each other well during collaborative disaster response leads to confusion, this is also made worse by the fact that disaster management is a function of both national and county government, so you will find that at sub county level for instance the representative of the national government want to take control, also the chief officer disaster management at the county who represent the governor at the same time

> want to be the in charge or even the governor himself, all these results to confusion. These problems can be cured by having National Disaster Management Authority Bill, by creating one single coordinative authority over all disasters. (Respondent KIR5).

From the interaction with KIR 5, it is clear that if there is lack of unified command at the incident command post where all decisions are made concerning response operations, this impact effectiveness of CDM approach. This is because it results to confusions, conflicts and competition in giving out directives, which affects resource allocation and personnel deployment strategies, ineffective communication characterized by lack of clarity, delays in communication and even lacking convergence, this further complicated the CDM operation. Agencies can have their representative at the command post but they should all serve to complement the central command so as to avoid scenarios of competition among the top agencies leaders as to who is the in charge.

Respondents were asked whether agencies collaboration capacity influences effectiveness of CDM, study findings as presented in Table 4.10 show that majority (70%) of the respondents strongly agree that the capacity of agencies and individuals participating in CDM influences its effectiveness and 20.2 percent agree. Only 1.5 percent of the respondents strongly disagree that agency collaboration capacity does not influence the effectiveness of CDM. By having majority of respondents (70%) agreeing on collaboration capacity of participating agencies to influence effectiveness of CDM approach, it implies that collaboration capacity by participating agencies influences whether they have the technical skills, knowledge and attitude for such collaborations. Collaboration capacity determines agencies readiness to be compatible with other agencies, flexibility and sharing of resources which is key during collaborations.

The Study finding on the influence of collaboration capacities on CDM is corroborate by the study findings by Okechukwu et al (2020) which noted that collaboration capacity influences CDM. Collaboration capacity compromises economic and social factors which includes; resource configuration, partner compatibility and coordination, trust, commitment and communication. The study finding is further supported by Tyler (2001) who noted that collaboration capability is especially important in dynamic and uncertain environment in which unusual situations demand committed action.

From the study findings and the corroborating literature, collaboration capacity of agencies is key in influencing effectiveness of CDM approach, this is because it determines key social and economic factors necessary for CDM to be effective, like resource mobilization, compatibility of agencies, trust, commitment and communication. Also, the readiness by agencies to learn, create new knowledge and to transfer the same during CDM is dependent upon collaboration capacity. Therefore, agencies need to have the capability to collaborate for CDM to be effective. While contributing on collaboration capacity, key informant KIR14 explained the following;

> Agencies collaboration capacity is key for us to effectively deliver during CDM, this is because collaboration capacity ensures that we have the ability to work together, be compatible with other agencies, have the right attitudes towards the process and perception towards others. All which are key in the success of CDM (Respondent KIR 14).

The findings maintain that the ability by agencies to collaborate cannot be ignored as it determines very key economic and social factors which influence effectiveness of CDM. The ability to work together or to be compatible during collaborations in disaster management is one such key factor that which is determined by the capacity of the

agencies to collaborate, collaboration capacity also plays an important role in ensuring that agencies have the necessary skills, right attitudes towards collaboration process.

The respondents were further asked to indicate whether agencies capacity to collaborate with others is influenced by agency leaders, and the finding as indicated in Table 4.10 show that majority (40.3%) of the respondents agree that agency leaders influence agencies collaboration capacity while 15.8 percent strongly agree that collaboration capacity of agencies is influenced by agency leaders. 36.7 percent of the respondents disagree and 1.1percent of the respondents strongly disagree that agency leaders influence collaboration capacity of agencies. The implication of having collaboration capacity indicated to be influenced by agency leaders means that agency leaders play key roles to ensuring that their agencies develops the capacity to collaborate with others.

For instance, it is agency leaders who set and influence agendas, goals, objectives and even culture for their organization. Organizational leaders are catalysts and drivers of organizational change, hence if leaders' belief in collaborations, they will steer their agencies towards having the capacity to collaborate with other agencies, and thus greatly influencing on their capacities to collaborate. The study finding is consistent with the study findings by Moynihan & Kroll (2015) which noted that leader set and influences agency priority goals, finding also corroborate findings by Bardach (2001) who noted that leadership mobilizes social capital. According to Ansell and Gash (2012), leadership roles include supporting effective collaboration and enabling their organizations to learn, where leaders are stewards, catalyst and mediators.

Form the study finding, leaders play a key role in determining collaboration capacity, for instance leaders help in identifying value and creating opportunities for collaborations, leaders help protect collaborative processes by arbitrating and nurturing relationships between different agencies with different perspectives and interest. Therefore, by leaders facilitating positive exchanges between agencies, this helps in establishing collaboration capacity and stabilizing collaboration process. The study finding is further corroborated by key informant KIR10, who explained the following;

> Leaders play a big role in ensuring that their agencies have the right attitude and capacity to collaborate with others, even during the Westgate attack, if at all leaders had political goodwill, their agencies would have collaborated well (Respondent KIR 10).

From the study finding, leaders can influence and create the political will required for their agencies to develop collaboration capacities, this is because they are the custodian of policies and strategies of their agencies. Hence having the good will to establish and maintain collaboration process, this influence collaboration capacity of their agencies.

4.4.2 Roles, Responsibilities and relationship forming

Respondents were asked whether having clear roles and responsibilities for each agency participating in collaborations influences CDM. Study finding as presented in Table 4.10 show that majority (85.1%) of the respondents strongly agree that there is need for role clarity and that it influences CDM, 9.8 percent agree, 2.25 percent disagree while 1.5 percent strongly disagree on the need for role clarity during CDM. Role clarity involves different agencies participating in a collaborative arrangement being explained or aware of the actions to take so as to complete task and achieve common goal. Role clarity was

noted by majority of respondent (85.1%) to have influence on effectiveness of CDM approach.

This is because it helps collaborative arrangements achieve results by enabling them deal with chaos, since each participating agency has clearly defined roles, thus avoiding confusion. Role clarity avoids duplication or discontinuity of activities, promotes accountability in that roles of each specific agency participating in the collaborations are known. Therefore, having clear roles and responsibilities during CDM greatly influences success of collaborations in disaster management. The finding is supported by Pollock (2013) who noted that role clarity influences effectiveness of CDM, where lack of role clarity to Pollock (2013) results to conflict over who does what, lack of trust and reduced information sharing negatively impacts on CDM. While contributing on roles and responsibilities during CDM, key informant KIR5noted the following;

> Having role clarity during CDM is very critical to ensuring timely response to disaster, this is because when we reach in to a disaster scene when each of us knows his or her roles, it becomes easier, for instance if a building collapses, we have KDF and NYS with machineries and equipment, we let them do the search and rescue, the police to do the cordoning and security of the assets, Red cross to evacuate the victims to hospital, this makes our work easier, but all these is determined by the overall leadership (Respondent KIR 5).

Role clarity was noted by KIR5 to be very critical since it helps in achieving timely response during CDM by ensuring minimal or no conflicts over who does what, eliminates duplication of roles where agencies get into collaborative arrangement knowing what to do or are immediately explained activities that they are going to do. This raises participants' morale and confidence towards the process, hence influencing on the effectiveness.

The respondents were asked to indicate whether personnel during CDM like performing roles and responsibilities which they are well acquainted with, and the study findings as presented in Table 4.10 show that majority (75%) of the respondents strongly agree that during CDM, personnel like performing roles which they are well acquainted with and not just any role assigned to them. 17.3 percent agree. 6 percent of respondents disagree that individuals during CDM like performing roles which they are familiar and that during CDM individuals can perform any duties assigned to them irrespective of their areas of specialties. 1.55 percent of the respondents were undecided whether during CDM, individuals like performing roles which they are well acquainted.

By having majority of respondents (75%) indicating preferences on roles that which they are well acquainted, it implies that if individuals are assigned roles in areas of their expertise to perform, this lead to high levels of motivation, confidence and having right attitude towards the collaborative work. The finding is inconsistent with Segar, Rogders, Salibury & Thomas (2013) who noted that individuals resist collaboration when assigned roles they are not familiar with by attempting to reestablish their authority and norms. According to Anderson, Pollard, Conroy & Claque (2014) role changes is seen by professional as threat to their professional identity, hence will always seek to protect it.

These finding is corroborated by one key informant KIR14 who explained the following;

> Having background in medical field, I feel more comfortable being assigned duties pertaining to my areas of specialty as am sure on what to do and give the best (Respondent KIR 14).

From the finding, assigning individuals roles and responsibilities which they are familiar with during CDM brings more satisfaction and increases their level of commitment towards the collaboration process, this influences CDM positively.

The researcher sought to establish whether individuals forming relationships impacts on the effectiveness of CDM, study findings as presented in Table 4.10 show that majority (70.4%) of the respondents agree, 19.2 percent of the respondents strongly agree while 4.5 percent of the respondents disagreed that individual forming relationships impacts CDM. Forming relationship during CDM was noted by majority of respondents as influencing effectiveness of CDM approach. This is because by establishing relationships either formally or informally, it sets the stage for such agencies or individual to exchange resources including information, ideas, skills and knowledge.

Relationships between agencies or individuals during CDM facilitates opening and establishing channels of communication, platforms for having a shared understanding to problems and above all achieving joint decision making. Therefore, forming of relationships by individuals' and agencies influences effectiveness of CDM approach. The study finding obtained was consistent with Strikler (2010) who concluded that relationship building during CDM influences almost all factors which influences collaborative arrangements. The finding also corroborated findings by Couturier and Sklavounos (2019) which noted that forming of relationships between individuals participating in a collaborative arrangement is key in determining success of the arrangements. Relationships can either be formed formally or informally, where formal

relationships are characterized by formal engagements between agencies why informal relationships are not bound by any written document.

Respondents were asked whether having prior interactions between DMA facilitates relationship building for collaborations, and the finding as presented in Table 4.10 show majority (72%) of the respondents agree that prior interactions influence relationship formation during CDM. 12.4 percent strongly agree while 5.3 percent disagree that prior interactions by agencies facilitates relationship building. By having majority of respondents (72%) indicating prior interactions to influence relationship building during CDM, this mean that the ease at which individuals form relationships for collaborations is determined by greater extend by prior interactions.

Individuals who have interacted before means that they know each other's strengths, weaknesses, cultures, interests, and values, this will facilitate or hinder forming of relationships. Since prior knowledge of each other also determines the perception people forms about others, if individuals have right perception and attitudes about others as a result of having interacted with them before, this will impact positively on how they form relationships and vice versa. The finding is consistent with a study by Martin et al (2016) which noted that preexisting interactions influences relationship building. The finding is further corroborated by one key informant KIR15 who noted the following.

> Forming relationships with agencies we have met and interacted before during CDM is easier. But there are also other cases where you meet an agency or with individuals you have never met before and we get along as we interact. (Respondent KIR 15).

From the study findings above, agencies find it easier to form relationships with agencies they have interacted before. However, it is not always that agencies participating in a CDM have had prior interaction, in that case they form relationships as they interact and engage each. Findings have indicated the importance of having prior interactions in facilitating relationship building, therefore there is need for agencies to find and create opportunities for interacting, as this was seen to facilitate relationships. Increased interactions between agencies provide an opportunity for agencies to learn each other's strengths and weaknesses which makes it easier for them to complement each other during CDM.

The respondents were further asked to indicate whether individuals must have prior interactions so as to form relationship for CDM, and the finding as presented in Table 4.10 show that majority (71.4%) of the respondents disagree, 17.7 percent strongly disagree that individuals must have prior interactions so as to form relationship for CDM while 6 percent agree that individual must have prior interactions so as to form relationships for collaborations, 2.3 percent were undecided. Majority of respondents disagreed that to form relationships, individuals must have prior interactions, an indication that it is not some must individuals to have prior interactions so as to form relationships for CDM. On prior interaction as must for individuals to form relationship, key informant KIR12 explained the following;

> Having prior interactions is good and facilitates relationship building, but there are incidences we meet with so many individuals whom we have never met before and immediately get along with to work. I think it is the situation which dictates on how to form relationships for collaborations. Relationship can either be official or unofficial and they both work during collaborative disaster management. I think it's only official relationships

> that require disaster management agencies to have previous engagement, but for unofficial relationship, disaster situations bring different agencies from different background and totally new people interact and form relations for collaborations, later on if there is need, such relations are made official (Respondent KIR 12).

From the above qualitative data, disaster scenarios attract both invited and uninvited responders depending on the magnitude of the disaster, and therefore, it will not be practical that at all times individuals must have had interactions.

4.4.3 Shared Understanding of Problems and joint decision making

The researcher sought to establish whether differences in how individuals understand problems during collaboration influences effectiveness of CDM approach. Study findings as presented in Table 4.10 show that majority (70%) of the respondents strongly agreed that differences in how individuals understand a problem during collaborations influences on effectiveness of CDM approach while 20.3 percent agree. 9 percent of the respondents disagree that differences in how individuals understand a problem influences effectiveness of CDM approach with 0.7 percent of the respondents strongly disagreeing.

Having majority of respondents (70%) strongly agreeing that how individuals during CDM understands problems influences CDM effectiveness. Having a shared to a problem during CDM means that there will be minimal conflicts, improved response times as there is no much time wasted in building consensus on how to approach the situation at hand. It also implies proper resource utilization as individuals are able to agree on one course of action hence all resources directed towards that, it enhances trust and also improves quality of interactions and relationships.

However, having differences in how individuals understand a problem during CDM does not always result to conflicts or lack of harmony, as it widens the perspectives of looking at the problem, brings creativity and innovations on how such a problem can be handled. Through this, it influences on the effectiveness of CDM approach. The finding of the study is consisted with findings by Laihonen & Mantyla (2017) which noted diversities on how individuals understand a problem to influence collaborative process. Fur, the finding support findings by Boin et al (2017) which noted that shared understanding to problems influences CDM, while according to a study by Mandel et al (2016), shared understanding to problems influences CDM by minimizing conflicts. While contributing on diversities in understanding problems during CDM, key informant KIR1 narrated the following;

> Having common understanding to problems is very key to ensure CDM effectiveness, I remember one incident involving City Hall fire when we responded and found out that the fire was so fierce, other fire-fighting agencies were mobilized to join us, since we arrived at the scene first, our fire engines were the first to run out of water, fortunately one of the agency had very big water tankers, when they arrived they started tackling the fire from above and from outside the building, we approached them and explained to them that this being a structural fire, the best strategy is to fight it from within, that is we have our fire men inside the building what we are lacking is water, so we proposed that they connect their pipes to our fire engines so that we can continue fighting the fire from inside but it seems we were not getting anywhere, they continued from outside and the fire continued getting fierce, it took a lot of time for them to buy our idea, by the time we all got to a common ground, the fire had already caused a lot of damages which if we had reached to a common stance we would have managed(Respondent KIR11).

From the study finding, it can be concluded that reaching a common understanding to problems influences how effective CDM arrangement are, but from the data above it is clear that forming a shared understanding to problems is not easy. This imply that there

are other factors that affects common understanding to problems, for instance knowledge of other agencies capabilities, trust agencies have over others and agencies perception.

The respondents were asked to indicate their level of agreement on whether joint decision making during CDM enables a shared understanding to problems, and finding as presented in Table 4.10 show that majority (50%) of the respondents strongly agree and 20 percent agree, while 16 percent disagree and 4 percent strongly disagree that joint decision making enables a shared understanding to problems during CDM. Joint decision making as a factor to determine shared understanding was noted by majority f the respondents ((50%) strongly agreeing and 20 percent agreeing. By having joint decisions during CDM, it means that agencies are included, the inclusion of agencies makes them feel that their ideas and resources are valued.

This results to greater commitment and buy in of ideas which will be deliberated and in this case reaching common understanding to problem is not difficult. However, it is not a must for people to be included in making decisions so as to have a common understanding to problems, this is because, it is impractical to include all agencies present during CDM. How such deliberations are communicated by the collaborative leadership to individuals and agencies not present during joint decision sessions matters a lot. The finding is corroborated by the study finding by Boin et al (2017) which noted that joint decision making contributes to having shared understanding to problems, ultimately improving effectiveness of CDM.

The finding is also consistent with finding by Kroll (2015) which noted participation in goal setting by different agencies during collaborations to be positively related to

achieving a shared understanding which improves collaboration performance. The study finding is further corroborated by one key informant KIR7, who noted the following.

> Whenever representatives of various agencies meet at the incident command post and consult over a matter, it results to better decision than when a single person unilaterally makes decision alone. In instances where leaders make unilateral decisions without including agency representatives available, uptake of such decisions during CDM is very slow and usually the process is characterized by conflicts and dissatisfaction, this greatly affects CDM negatively (Respondent KIR 7).

From the study finding, agencies should embrace consultations over matters arising during CDM, as this ensures that they reach common understanding to problems. But it is also worthy to note that the urgency with which disaster response calls for may not at all times lead to consultation involving all agencies available.

4.5 Collaborative Disaster Management Contributing Factors

This section presents findings, analysis and discussion in relation to factors contributing to CDM, where respondents were asked to state the degree of extent the following factors contribute to CDM on a Likert scale of 5. Effective leadership, increased communication and interaction, role clarity, mutual respect, compatibility in agency structures and procedures, mission alignment, goal convergence, shared understanding to problems and joint decision making. Where 5–Very Great Extent (VGE), 4-Great Extent (GE),3-Moderate Extent (ME), 2-Low Extent (LE) and1-No Extent (NE).

Table 4.11: CDM Contributing Factors

Contributing factors	VGE %	GE %	ME %	LE %	NE %	MEAN	STD DEV
Effective leadership	83.1	15,4	1.5	0	0	4.8	0.43
Increased communication	71	25	4	0	O	4.7	0.56
Having Clear roles and Responsibilities	80.1	18.4	1.1	0.4	0	4.7	0.46
Mutual respect	33.5	64.7	1.9	0	0	4.3	0.50
Compatibility in Structures and polices	26	66	8	0	0	4.1	0.56
Mission alignment	66.9	28.2	4.9	0	0	4.2	0.54
Goal convergence	32.3	64.7	3	0	0	4.3	0.52
Shared understanding to problems	63.5	33.5	3	0	0	4.6	0.61
Joint decision making	78.9	20.3	0.4	0.4	0	4.8	0.45

Source: Field Data (2021)

4.5.1 Effective Leadership

The researcher sought to establish to what extent effective leadership contributes to CDM effectiveness, study findings as represented in Table 4.11 shows that majority (83.1%) of the respondents indicated that effective leadership contribute to CDM effectiveness to a very great extent, 15.4 percent great extent while 1.5 percent moderate extent. Effective leadership as a contributing factor to effective CDM had a mean of 4.8 and SD of 0.43 an implication that effective leadership contributes to a very great extent to CDM by creating a conducive environment for different participant to work together irrespective of their diversities. The study finding is supported by the study by Boin et al (2016) who concluded that effective leadership is critical for success of collaborative arrangements

especially during crisis situations. Also, study finding is further corroborated by Akhtar (2012) who noted that competent leaders with strong leadership and social skills impact to a greater extend collaborative response to disasters. One of the key informant KIR15, during interview had this to say on effective leadership and CDM;

> For CDM arrangements to succeed and give good results, good leadership must be provided by the in-charge incident command post who should have social skills, innovative, motivate others, problem solving skills visionary, energetic, good communication skills and one who is ready to learn (Respondent KIR 15).

From the study finding, effective leadership is seen to contribute to a very great extent towards effectiveness of CDM, where for leaders to be effective, they are required to have some traits which qualify them to be effective leaders. Even though the study has given the required traits for effective leadership, getting all of them in a single individual would be the biggest challenge. This therefore calls for leaders to complement others during CDM.

4.5.2 Increased Communication and Interaction Between Agencies

Findings as represented in Table 4.11 shows that majority (71%) of the respondents indicated that increased communication between DMA contributes to a very great extent to effectiveness of CDM, 25 percent of the respondents indicated great extent while 4 percent indicated that increased communication contributes to a moderate extent towards effectiveness of CDM. Increased communication variable had a mean of 4.7 and SD 0.56, an implication that increased communication contributes to very great extent to CDM effectiveness. This is because increased interaction and communication between participants facilitates sharing of information, exchange of resources, building of trust

and achievement of shared understanding to problems. The study finding on the extent to which communication and increased interaction between players contributes to success of CDM is corroborated by Al Ridhawi et al (2020) who noted communication to contribute to a very great extent success of collaborations by increasing the stability of relationships, influencing commitment, contributing to common standards and building trust of individual organizations during collaborations.

Study findings and corroborating literature indicates that increased communication contributes to a very great extent to the effectiveness of CDM arrangement. This is because communication determines other social and process factors that influence on effectiveness of CDM, and therefore increasing communication between agencies during CDM will result to effectiveness in CDM. However, the challenge of interoperability in communication modes amongst the collaborating agencies still poses a challenge. These finding is further supported one by key informant KIR3, who explained the following;

> If agencies responding to the Westgate terror incident could have had good communication with one another, it could have been easy for them to neutralize the attackers in the shorted time possible (Respondent KIR 3).

This indicates that presence of good communication during CDM lead to effectiveness of CDM operation.

4.5.3 Clear Roles and Responsibilities as Contributing Factor to CDM

Research findings as shown by Table 4.11 revealed that majority (80.1%) of the respondents were of the opinion that having clear roles and responsibilities during collaborations contributes to a very great extent towards effectiveness of CDM. 18.4 percent of the respondents indicated that role clarity contributes to a great extent on the

effectiveness of CDM while to 1.5 percent of the respondents having clear roles and responsibilities contributes to moderate extent to the effectiveness of CDM. Role clarity as a contributing factor to effective CDM had a mean of 4.7 and SD of 0.46, this implies that having clear roles and responsibilities during CDM results to agencies taking the shortest time possible to respond, this is because agencies participating in such collaborations are aware of what is expected of them.

It also implies that there are less conflicts between participating agencies hence trust building which makes working together easier, hence role clarity contribute to a greater extent to effectiveness of CDM .The study finding on the extent to which role clarity contributes to effective CDM is consistent with a study by Owen et al (2015) who noted clarity in roles and responsibilities to be very critical in determining success of CDM, and is further supported by Curnin et al (2015) who concluded that by influencing trust and minimizing conflicts, role clarity greatly contributes to success of CDM. The finding is further corroborated by one key informant KIR13, who explained the following;

> Role clarity ensures smooth operations during CDM since individuals concentrate on what they know better, as a result we have good working relation and share a lot, than when there is confusion on who is to do what (Respondent KIR 13).

The study finding show that role clarity ensures that each agency gets to collaborative work with specific duties to play, and this therefore avoids duplication, minimizes conflicts during collaborations and above all it ensures that agencies perform duties and responsibilities which they are familiar.

4.5.4 Mutual Respect as a Contributing Factor to CDM

Study finding on the extent to which mutual respect contributes to effectiveness of CDM as presented in Table 4.11 shows that majority (64.7%) were of the opinion that mutual respect contributes to a great extent on the effectiveness of CDM, while 33.5 percent indicated that mutual respect contributes to a very great extent on the effectiveness of CDM. Approximately 1.9 percent of respondents were of the opinion that mutual respect contributes to moderate extent on the effectiveness of CDM. Mutual respect as a variable had a mean of 4.3 and SD of 0.50, this implies that mutual respect to a greater extent contributes to CDM effectiveness.

This is because mutual respect results to building of trust, facilitate sharing of information and greater communication between participants and also leads to change in attitudes and perception during CDM. The study finding is consistent with finding by Partnerships (2008) who noted that for CDM networks to be effective and sustainable, mutual respect was a key element. The same was noted by Kapucu and Garayev (2013) who in their study noted that sustainability of collaboration networks for disaster management would be at stake without mutual respect. From the study finding, mutual trust was observed to contributes to a very great extent the effectiveness of CDM, mutual respect is generated by trust, and this imply that if individuals during CDM are going to trust each other, then this will generate mutual respect among participants which most literature indicate is critical in contributing to the effectiveness of CDM. One of the key informant KIR6, during the interview explained the following;

> If people don't respect each other during CDM, communication becomes difficulty as each individual will be waiting to follow what is agency

> leader will say, but when there is mutual respect, any in charge from whatever agency will coordinate the exercise and all individuals will be taking the advice from a centralized post (Respondent KIR 6).

From this qualitative data, it is clear that mutual respect amongst participating agencies during CDM leads to smooth operations by facilitating coordination, communication and also uptake of directives from top collaborative leadership.

4.5.5 Compatibility in Structures and Procedures as Contributing Factors to CDM

The respondents were asked to what extent having DMA with flexible and compatible structures and procedures contributes to effectiveness of CDM, and the study finding as presented in Table 4.11 show that majority (65%) of the respondents indicated flexible and compatible agency structures contributes to a great extent towards effectiveness of CDM. Approximately 6.3 percent of respondents indicated flexible and compatible agency structures contributes to CDM effectiveness to a very great extent while 1.9 percent of the respondents indicated flexible and compatible agency structures and procedures contribute to moderate extent to effectiveness of CDM.

Compatibility in agency structures and procedures as contributing factors to effective CDM had a mean of 4.1 and SD of 0.56. This implies that having compatible agency structures and procedures during CDM results to less response times, as there are minimal conflicts, harmony and also a shared understanding of problem, hence contributing to a greater extent to effectiveness of CDM. This finding is supported by McLachin and Larson (2011) who noted that compatible agency structures contribute to a great extent to CDM effectiveness. One of the key informant KIR2, corroborated the finding by explaining the following;

> If we have participating agencies with flexible and compatible structures during CDM, this minimizes conflicts, getting along with one another is always easy (Respondent KIR 2).

Having compatible agency structures and procedures from the qualitative data above implies minimal conflicts and team cohesion, all which influence other aspects of collaborations positively, thereby contributing to a greater extend to effectiveness of CDM.

4.5.6 Mission Alignment and Goal convergence as Contributing Fctors to CDM

The respondents were asked to indicate the extent of agreement with the statement that mission alignment is a contributing factor to CDM, study results as presented in Table 4.11 show that majority (66.9%) of the respondents indicated that it contributes to a very great extent towards the effectiveness of CDM. 28.2 percent of the respondents were of the opinion that mission alignment during collaborations contribute to a great extent to effectiveness of CDM. 4.9 percent indicated that mission alignment contribute to a moderate extent towards effectiveness of CDM.

Mission alignment as a variable had a mean of 4.2 and SD of 0.54, this implies that aligning missions of different agencies during CDM results to achieving harmony, developing common strategies of dealing with the problem at hand, therefore contributing to a greater extent to effectiveness of CDM. The study finding is supported by Kapucu and Garayev (2013) who noted mission alignment to be a critical factor to CDM success. The study finding is further corroborated by one of the key informantKIR4, who made the following observation;

> Agency goals and mission alignment reduces conflicts, improves on agency interaction, reduces competition because we are all working towards the same mission, this greatly affects CDM positively (Respondent KIR 4).

From the qualitative data above, having aligned missions by different agencies participating in collaboration means minimal conflicts, higher interaction between participants and also lack of competition between the participants since they are working to attain one objective.

The respondents' opinion was sought on goal convergence and from the study finding as presented in Table 4.11, majority (64.7%) of the respondents indicated that goal convergence contributes to a great extent to effectiveness of CDM, with 33.5 percent of the respondents indicating that goal convergence contributes to a very great extent while 7percent indicated that goal convergence contributes to moderate extent to the effectiveness of CDM. Goal convergence as a contributing factor to CDM had a mean of 4.3 and SD of 0.52, an implication that convergence in goals of different agencies during CDM leads to avoiding goal directed behaviors and competition which worsens CDM performance, thereby contributing to a greater extent to the effectives of CDM arrangements.

The study finding is consistent with a study by Kapucu, Garayev and Wang (2013) who noted goal convergence to contribute greatly to success of CDM but contradicts Guimera et al (2005) who noted that differences in agency goals to be essential, and also contradicts Frykmer, Tegler, Christian and Wester (2021) who observed that goal alignment does not contribute to CDM effectiveness. This is because differences in goals and missions results

to having a wide view of looking at problems, also means having different expertise in different areas thereby contributing to effectiveness of CDM. The study finding on goal convergence is however corroborated by the opinions given by one of the key informant KIR9, who explained the following;

> Whenever we meet with other DMA with similar goals like ours, this saves response time and contributes to effective CDM unlike when we have goal differences which are usually difficult to reconcile (Respondent KIR 9).

From the study finding, convergence in agency goals results to increased effectiveness of CDM arrangements by resulting to consensus on strategies to employ during CDM.

4.5.7 Shared Understanding to Problemsand joint decision making as Contributing Fcators to CDM

Having a shared understanding to a problem during collaboration was indicated by majority (63.5%) of the respondents as contributing to a very great extent towards effectiveness of CDM, 33.5 percent of the respondents indicated that it contributes to a great extent while 4 percent of the respondents indicated that shared understanding to problems contribute to a moderate extent to the effectiveness of CDM. The findings are presented in Table 4.11. Shared understanding to problems as a contributing factor to effective CDM had a mean of 4.6 and SD of 0.61, this implies that shared understanding results to harmony, less conflicts and faster response as agencies do not waste much of time in reaching to common strategies, thereby contributing to a very great extend to the effectiveness of CDM.

The study finding is consistent with study findings by Tang, Shau, Zhau and Hu (2021) who concluded that effectiveness of CDM to a very great extent was dependent on having a shared understanding between agencies participating in the arrangements. The study finding is further supported by one key informant KIR11, who explained the following;

> Getting to have a common understanding to a problem ensures that we achieve our goals in the shortest time possible during CDM (Respondent KIR 11).

From the above findings, having a shared understanding to a very great extent contributes to effectiveness of CDM, but the challenge has always been to establish a common understanding between the different agencies.

Joint decision making as a contributing factor to effectiveness of CDM was indicated by majority (78.9%) of the respondent as contributing to a very great extent towards effectiveness of CDM, 20.3 percent of the respondents indicated that it contributes to great extent while to 0.8 percent of the respondent's joint decision making by participating agencies contributes to moderate extent the success of CDM. Joint decision-making variable had a mean of 4.8 and SD of 0.45, this is because joint decision making means great inclusivity of participating agencies, therefore having a buy in of deliberations by agencies, thereby reducing conflicts and also power equalization, therefore contributing to a very great extent effectiveness of CDM.

This is corroborated by Zubir, Thiruchelram, Mustapha and Muda (2016) who noted that joint decision making was a critical element for prompt and effective CDM response.
The study finding is also supported by one key informant KIR8, who explained the following;

> When we include agency representatives for decision making at the incident command post during CDM, it results to better decisions and are easily adopted by all individuals present, making our work easier (Respondent KIR 8).

Joint decision making from the qualitative data above helps agencies during CDM to reach consensus easily, thereby contributing to a very great extent the effectiveness of CDM. However, during disaster response scenarios it may appear impractical to have all agencies represented or responding to be included at the incident command post so as to form joint decisions. The urgency with which response is required following a disaster may not allow for that, only few agencies may manage to make decisions on behalf of the others.

4.6 Inferential Analysis

Table 4.12: Linear Regression Model

Model Summary									
				Std. Error of the Estimate	Change Statistics				
Model	R	R Square	Adjusted R Square		R Square Change	F Change	df1	df2	Sig. F Change
1	.326[a]	.106	.096	.30847	.106	10.399	3	262	.000
a. Predictors: (Constant), P_Dynamics1, Org_Dynamics1, H_Dynamics1									

Source: (Field Data, 2021).

Table 4.12 linear regression model presents results for inferential analysis of quantitative data, where quantitative data was subjected to linear regression analysis to determine if there was any significant relationship between the IAODs and CDM. From Table 4.12 above, a correlation coefficient (R) of R=0.326; P= 0.000 was obtained, implying that there was a statistically significant positive relationship between IAOD and CDM. This

is an indication that IAOD influences CDM performance fairly with a strength level of 32.6%. The regression model summary further indicates the coefficient of determination (R^2) to be R^2= 0.106: P= 0.00, this implies that 10.6% of variability in CDM is explained by IAOD. From Table 4.12 above, it is clear that the independent variable is statistically significant but a low coefficient of determination (R^2) was obtained, according to Dodge (2008) a low coefficient of determination (R^2) indicates high unexplained variation in the dependent variable.

Table 4.13 Regression Analysis for Individual IAOD

Model		Unstandardized Coefficients		Std Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.533	.371		6.820	.000
	Org_Dynamics1	.109	.063	.107	1.717	.001
	H_Dynamics1	.235	.069	.219	3.410	.000
	P_Dynamics1	.123	.066	.113	1.855	.001

a. Dependent Variable: CDM1

Source: Field Data, 2021).

Further analysis was performed to determine individual contribution of each IAOD on CDM and results presented in Table 4.13 above. The overall regression model indicates that the coefficient of determination (R^2) was (R^2= 0.106; P=0.000), an implication that the three IAOD accounts for 10.6 percent influence on CDM, but each individual IAOD account for a unique variance on CDM. From Table 4.13 above, it is clear that OD influence on CDM is significant (R^2= 0.109, β =0.107, P=0.001). This implies that OD contribution to the overall influence of IAOD of 10.6 on CDM is 10.9 percent. The relationship between OD and CDM can also be concluded to be significant, since P-value was 0.000 which is less than 0.05, also for every 1 standard deviation unit increase in OD

would result to 0.107 standard deviation unit increase on CDM, therefore, OD is a significant variable of CDM.

HD influence on CDM was statistically significant as indicated in Table 4.13 (R^2= 0.235; β = 0.219, P=0.000), this implies that HD contribution to the overall influence of IAOD on CDM is 23.5 percent. PD influence on CDM was also statistically significant (R^2= 0.123; β = 0. 113, P=0.001) since P –value was 0.001 which is less than 0.05. Therefore, it can be concluded that PD contribution to the overall influence of IAOD on CDM is 12.3 percent. Of the three IAOD, HD was noted to have the greatest contribution of influence to CDM of 23.5 percent compared to OD and PD which had 10.9 percent and 12.3 percent respectively. The general objective of the study was to assess the influence of IAOD on CDM.

From the above results, it is clear that IAOD influences performance of CDM arrangements. However, the percentage of the strength of relationship (32.6%) indicates that there are other factors alongside the IAOD that affects performance of CDM arrangements. To determine the extent to which the three IAODs i.e. Organizational Dynamics, Human Dynamics and Process Dynamics were interrelated, correlation analysis (Bivariate) was performed and results are as indicated in Table 4.14 below

Table 4.14: Correlations Summary

			OD	HD	PD
CDM	Bivariate Correlation	1	.203**	.288**	.191**
	Sig. (2-tailed)		.001	.000	.002
	N	266	266	266	266
Org_Dynamics	Bivariate Correlation	.203**	1	.352**	.160**
	Sig. (2-tailed)	.001		.000	.009
	N	266	266	266	266
H_Dynamics	Bivariate Correlation	.288**	.352**	1	.276**
	Sig. (2-tailed)	.000	.000		.000
	N	266	266	266	266
P_Dynamics	Bivariate Correlation	.191**	.160**	.276**	1
	Sig. (2-tailed)	.002	.009	.000	
	N	266	266	266	266

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Field Data (2021).

From Table 4.14 correlations summary above, it is clear that the three interagency operational dynamics are interrelated, i.e., where correlation coefficients (r) are as follows: OD and PD, r is 0.16; p =0.009, OD and HD r is 0.352; p =0.000 and PD and HD r is 0.276; p =0.00. From the findings, HD was noted to correlate highly with the other two dynamics, the finding support findings from Table 4.13 where HD contribution to the overall influence of IAOD on CDM was the highest compared to the other two IAOD. The implication is that some of the indicators of human dynamics determine how

indicators of process and organizational dynamics influence CDM and vice versa. For instance, common understanding to a problem which is a process dynamic is highly dependent on trust and power asymmetries which are all human dynamics, where for individuals to form or agree on a common way of addressing a problem, they will need to trust each other and also ensure they have power equalization.

Also, leadership which is a process dynamic to a great extend determines other indicators of human and organizational dynamics. The interrelationship between human and organizational dynamics was the highest followed by human and process dynamics, the lowest interrelationship was observed between organizational and process dynamics. From the analysis above, it was also observed that there exist positive significant relations between the three IAODs and CDM as follows: OD and CDM, r = 0.203; P= 0.00, HD and CDM, r = 0.288; P= 0.00 and finally PD and CDM r = 0.191; P= 0.002. From the results above, human dynamics was observed to have the highest influence on CDM performance, followed by organizational dynamics, process dynamics had the least influence on the performance of CDM arrangement.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter presents summary of the study findings, conclusions from findings and recommendations based on study specific objectives. Also, it gives suggestions on the area of future research. The study sought to examine the influence of IAOD on CDM in Nairobi City County, where the following three specific objectives guided the study; assessing the influence of OD on the performance of CDM arrangements, examining HD influence on the implementation of CDM arrangement and evaluating the impacts of PD on the effectiveness of CDM approach in the management of disasters in NCC, Kenya.

5.1 Summary of Findings

This section outlines summary of study findings in relation to the three specific objectives. The general objective of the study was to assess the influence of IAOD on CDM. Study findings indicate that there was a positive significant relationship between IAODs and CDM with R= 0.326 P= 0.000, an implication that IAODs influences performance of CDM arrangements.

5.1.1 Influence of Organizational Dynamics on Performance of CDM Arrangements

The first specific objective of the study sought to assess the influence of OD on performance of CDM in Nairobi City County, Kenya. The indicators that assessed OD influence on CDM included agency cultures, agency values, beliefs and philosophies, agency missions, goals and mandates, agency polices, structures, and procedures and agency commitment. Research findings from the correlation analysis indicated that there

is a statistically significant positive relationship between OD and CDM where a correlation coefficient (r) of0.203; P=0.001was obtained, the second after HD.

The OD was also observed to be correlated with HD and PD as follows, OD and HD, r =0.352; P=0.000 and OD and PD r = 0.160; P= 0.009, from the above, OD seems to correlate highly with HD than it does with PD, an implication that there is much interaction between OD and HD than the case of OD and PD. The degree of influence by various indicators of ODs on CDM effectiveness was almost in equal measure apart from policy which was observed to strongly influence CDM effectiveness. Amongst the organizational dynamics, agency beliefs, values and philosophies were seen to have the least influence on CDM performance.

From the study findings, agency cultures were more likely to influence CDM performance negatively at the onset of the collaboration, but as time goes by and the differences managed well under effective leadership, they result to innovative ways of working which ultimately influences CDM positively, however, the cultural diversities must be managed well. Increasing agency interactions through meetings, workshops, joint training and drills also helps to bridge the cultural differences since they provide opportunities for individuals from different agencies to learn understand and appreciate other agencies cultures, strengths and weaknesses. This help greatly in managing cultural diversities during CDM and influences positively CDM performance.

Rigid agency values, beliefs and philosophies undermines agencies readiness to learn and adopt new ways of doing things, determines how individual perceives other during the

collaborations, this negatively influences the performance of CDM. Differences in agency goals, missions and mandates influences CDM by determining how agencies interacts, failing to align and manage the differences results to agencies goal directed behaviour, competitions among agencies, supremacy and even conflicts, this greatly influences CDM performance negatively.

Agency structures, policies and procedures influences CDM by determining agency interoperability and interactions, incompatible agency structures and procedures negatively affect CDM performance while compatible and flexible agency structures and procedures result to increased interaction and commitment towards collaborations, this positively influences CDM. Having strong policy framework in place to guide CDM operations is critical since the existing policy only advocates for disaster management agencies to collaborate, but how such collaborations are supposed to be convened and managed is not addressed. It also came out that the proposed The National Disaster Risk Management Bill, 2021 was ready and aimed at addressing such gaps, should it be passed as an Act of parliament.

Agency commitment influences CDM by determining how other responding agencies will be committed towards collaborations, in sharing resources and information towards collaborations. When agencies show commitment towards collaborations, this results to greater synergy and increased sharing of resources, greatly influencing CDM performance positively. Lack of commitment by some agencies during CDM results to slower collaborative response to disasters as agencies are reluctant to share resources and further it overburdens agencies since few agencies are left doing the work, and this leads

to lack of morale. Commitment by top agencies leadership is a determinant factor as to whether their juniors are going to be commitment, where agencies top leadership is not committed to offer the required support during CDM implementation, this has effects on the agency's commitment on the ground during CDM implementation.

5.1.2 Human Dynamics influence on the Implementation of CDM Arrangements

The second specific objective of the study examined HD influence on the implementation of CDM arrangements, the indicators used includes: trust, power asymmetries, individual past experiences, individual perception of others, information sharing and communication. Correlation analysis results shows that there is statistically significant relationship between HD and CDM with a correlation coefficient(r) of 0.288; P=0.00 where according to the results the coefficient of HD is statistically significant at 0.05 level of significance.

The study revealed that HD had the greatest influence on CDM compared to other IAOD. Also, from the correlation analysis, it was observed that HD interacts the most with other IAODs, where the correlation between HD and OD was r = 0.352; P = 0.00 while correlation between HD and PD was r =0,275; P = 0.00. From the above results, HD indicators are determinant factors for both PD and OD

The various indicators of HD influenced CDM differently, but mutually worked together to influence CDM effectiveness where power asymmetries had the highest influence on CDM followed by trust. The study revealed that trust influences CDM arrangement performance by determining how agencies interact and share information, where lack of

trust leads to increased conflicts, unhealthy competition, reluctance by agencies to share resources and information. Trust during CDM is influenced by many factors including past history of working together, knowledge of others cultures, understanding of their strengths, perception and inclusion in decision making. For CDM arrangement to deliver, agencies need to trust each other, as this will ensure that they complement each other and establish mutual respect. This greatly influences CDM implementation positively.

Power asymmetries had the greatest influence on the implementation of CDM, power imbalance and struggle for power during CDM makes collaboration work almost unattainable. Failing to achieve power equalization during CDM was noted to result to lack of synergy, lack of trust, unhealthy competition, low power actors being over ruled or even excluded in decision making during CDM. This greatly influences negatively on implementation of CDM. To achieve power equalization during CDM implementation, there is need for inclusion, agencies valuing each other's contribution, encouraging symbiotic working relations and agencies striving to complement each other instead of competing each other. This greatly influences positively on the implementation of CDM

Findings from the study revealed that individuals past experience greatly influences on implementation of CDM, where good past experience leads to establishment of good working relationships, positively influencing implementation of CDM while bad past experience worsens relationship building negatively influencing CDM implementation. Perception held by individuals over others during CDM greatly influences CDM implementation, this is because perceptions individuals have positive or negative influences other determinants of CDM effectiveness including trust, interaction, sharing

of information and resources. Negative perceptions of individual towards other during the onset of CDM implementation may end up changing and individuals start perceiving others positively due to turn of events where the individuals end up receiving help they least expected of the other individuals.

Information sharing influences CDM implementation by influencing other determinants of CDM effectiveness including trust, joint decision making and communication, where lack of information sharing during CDM implementation leads to unhealthy competition, duplication of roles, less interaction, lack of common understanding to problems and conflicts between participating agencies. It also came out that failing to communicate during CDM leads to lack of coordination, conflicts, unfriendly working environment and mistrust between participating agencies and that increasing interactions between agencies through joint drills, regularly exercising together, holding meetings and workshops builds good working relationships. Achieving power equalization amongst agencies and having capabilities to collaborate with other agencies during CDM was also was observed to ensure good will to communicate.

5.1.3 Impacts of Process Dynamics on the Effectiveness of CDM Approach in DM

The third specific objective of the study evaluated the impacts of PD on the effectiveness of CDM approach in DM. The correlation analysis results shows that there is a statistically significant positive relationship between PD and CDM performance with a regression coefficient of r = 0.191; P= 0.002, the coefficient of PD is statistically significant at 0.05 level of significance. The implication of this is that a unit increase in PD leads to 19.1 percent change in CDM performance. The positive attribute indicates

that improvement in PD enhances CDM performance. The PD was also observed to interact with other IAOD, where the correlation of coefficient for the interaction is as follows, PD and OD r = 0.160; P = 0.009 while PD and HD r =0.276; P = 0.000

From the obtained results, PD interacted highly with HD than with OD. Study results indicate that PD produced the least impact on CDM, where clarity in roles and responsibilities had the greatest impact on the effectiveness of CDM approach in DM amongst the process dynamics, followed by joint decision making, leadership and coordination, and prior interaction as a facilitator of relationship building had the lowest influence on the effectiveness of CDM approach in DM.

The study observed leadership to be the nerve center of CDM where most of IAOD are dependent on it. For instance, coordination, inclusion in decision making, creating common understanding to problem, agency interoperability and collaboration capacity, synergy and relationship building among others all depend on the effectiveness of the overall incident leader. Technical skills in the area of CDM, strong communication skills, social skills, critical thinking and facilitation ability during CDM implementation were noted to be characteristics of effective CDM leaders. The multiplicities of many coordinative leaders and agencies from national government, county government and security agencies strongly influence on the effectiveness of CDM arrangements, where on many occasions leaders compete over who is the in charge of the incident. This has resulted to adverse effects to CDM effectiveness.

Collaboration capacity of agencies influences implementation of CDM arrangements by compromising the economic and social factors critical in determining success of CDM arrangements. Economic factors relating to CDM implementation which are affected by collaboration capacity are resource configuration, agency and partner compatibility and coordination wile social and relational factors which are greatly affected by collaboration capacity include trust, commitment, attitude and communication. Readiness to learn, create new knowledge and transfer the same during CDM implementation highly depends on agencies collaboration capacity. Agencies top leaders have a role to play in ensuring that their agencies develop collaboration capacity by influencing agency policies and strategies, cultivating good will to establish and maintain collaboration process.

Roles and responsibilities clarity amongst the process dynamics had the greatest influence on CDM implementation, clear roles and responsibilities ensures timely collaborative response as agencies do not waste time competing on who does what, this minimizes conflicts, makes coordination easier. Performing roles which individuals are familiar with during CDM implementation brings more satisfaction and ensures agency commitment towards collaboration, this positively influences CDM implementation. Relationship building greatly influences on the implementation of CDM arrangements as it influences other factors that determines success of CDM arrangements.

Good working relationships results to increase in trust amongst collaborative agencies, increased interactions during CDM implementation, increased commitment towards collaboration process, encourages sharing of resources and information. This helps in sustaining implementation of CDM arrangements. Prior interactions between disaster

management agencies through joint training and exercise, meetings and workshops facilitate relationship building as it provides an opportunity for the agencies to bond, learn each other's cultures, strengths and weaknesses. This helps agencies to relate well during CDM implementation, positively influencing the process.

Shared understanding to problems influences CDM implementation greatly as it minimizes conflicts, prevents agency goal directed behaviours, encourages sharing of information, increases interaction and communication, ensures agencies are committed towards collaboration process, results to quick and timely collaborative response to disasters, ensures proper utilization of resources during CDM implementation. Having a common understanding to problems during CDM implementation is determined by several factors including knowledge of other agencies capabilities, joint decision making, inclusion, trust levels and agencies perception towards others.

5.2 Conclusions

This section restates researcher's argument in understanding the significance and justification of the study. The study sought to assess the influence of IAOD on CDM. Generally, IAC is considered a good practice and strategy in the management of complex and uncertain situations and environments. From the findings, it is concluded that IAODs influences CDM effectiveness, though, the percentage of influence indicated that there are other factors that strongly influences performance of CDM.

5.2.1 Organizational Dynamics and Collaborative Disaster Management

An understanding of how OD interacts with other operational dynamics and how they influence CDM performance is key to help in improving the establishment, sustenance and management of effective CDM arrangements. The first research question was how do OD influence performance of CDM arrangement within NCC, Kenya and the study concludes that the various indicators of OD influence CDM differently, but they mutually work together to influence CDM effectiveness and that OD interacted highly with HD than with PD.

It is imperative to note that having a policy in place to guide how CDM should be established, sustained and managed for effective management of disasters is important. In addition, managing diversities resulting from differences in agency cultures, agency structures and procedures, agency values, beliefs and philosophies, agency mission, goals and mandates of the various agencies involved in the collaborations is key since such differences are inevitable and if not well managed, they compromise on the effectiveness of CDM. In light of this information, opportunities for agencies to interact regularly is critical since it provides a platform for such agencies to learn each other's culture, values, beliefs, strengths and weaknesses, this will go along in creating agencies knowledge of the other which is very vital during CDM operations.

5.2.2 Human Dynamics and Collaborative Disaster Management

From the second research question, what is the influence of HD in the implementation of CDM arrangements in NCC, Kenya and the study conclude that HD had the most influence on CDM effectiveness and that it interacted highly with the other IAODs.

Further, it can be concluded that creating opportunities for interacting regularly ensures that agencies develop an understanding of each other's capabilities and weaknesses, cultivate trust amongst themselves, change and improve their attitudes and perception towards each other, in addition it helps to develop individual experiences in CDM.

The study also concludes that power equalization during CDM is very critical and can be achieved through inclusion and agencies learning to appreciate each other's contribution during collaboration process. Agencies should work towards establishing workable platforms of sharing information, communicating regularly and increasing interactions, seeking ways for solving challenges and hindrances to sharing information and communication is key to ensuring success of CDM arrangements.

5.2.3 Process Dynamics and Collaborative Disaster Management

The third research question of the study was, what are the impacts of PD in the effectiveness of CDM approach in the management of disasters in NCC, Kenya and from the study findings, PD indicators influence CDM differently but mutually work together to influence effectiveness of CDM, where the study conclude that they are the nerve center and key drivers of CDM effectiveness. For instance, leadership determines how most of the dynamics interact during CDM. Further, the study concludes that having effective leaders with the right skills, attitudes, strong social skills, good communication skills, leaders who are critical thinkers and who are more of facilitators, and above all experienced with technical skills in the area of collaboration is key to ensuring CDM success. It is also important to have a single overall disaster coordinative agency to take care of disaster in the country and to act as the lead agency during CDM, as this will

improve on disaster management coordination, minimize confusion and competition on who is the overall CDM leader, or which agency is to play the lead role.

Thus, developing capacity of agencies to collaborate with others by ensuring that they have the readiness to share resources, information, learn, create new knowledge and transfer the same to other agencies during CDM is critical. Further, the study concludes that role clarity should be embraced at all times during CDM as it helps minimizes conflicts, duplication of roles, improves on response time and proper utilization of resources during CDM implementation. Therefore, creating opportunities for agencies to interact helps in forming and expanding relationship networks which are very beneficial to CDM and foster a shared understanding to problems during CDM which is very key to ensuring success of CDM arrangements.

5.2.4 Study Findings Contribution to Network Theoretical Framework

The study findings contribute to the three theories under the network theoretical perspective, where findings on OD indicate that differences in organizational tools, rules, legal regulations, processes and procedures were observed to influence CDM. This contributes to RDT in that the OD was observed to be key in maintaining the interdependence between the DMA. Without interdependency being maintained, resource exchange between DMA which is key to ensuring CDM success cannot be achieved.

Additionally, study findings on HD indicate that social capital asset is generated by HD variables. It is the social capital that enables individuals within a social network to share common values, norms, shared understanding to problems, collective action and problem

solving. From the findings the study makes a conclusion that social capital assets are dependent upon HD, whereby for members within a social network relationship to derive and access the embedded resources within the network they need to trust each other, perceive others positively, share information, communicate with each other and above all achieve power equalization as this contributes to SCT.

According to ICAT, people sharing same interests are naturally inclined to collaborate in pursuit of such interests. From the study findings, it is clear that PD influences CDM, where collective actions of individuals with common interest are influenced by PD variables including capacity to collaborate, leadership, clarity in roles, shared understanding and formation and sustenance of relationships. Hence findings of the study contribute to ICAT and make the theory relevant in analyzing networks for CDM.

5.3 Recommendations

This section draws attention to action-based evidence that has been gathered and analyzed in the study, and it provides specific actionable and evidence-based solution to the study problem. The main objective of the study was to assess the influence of IAOD on CDM. The results of the study are considered a landmark in the contribution towards not so well-known issue of the influence of IAOD on CDM. Collaboration as a strategy in management of disasters and security operations has been widely advocated for, but there has been less understanding on how the various dynamics involved interact and influences its effectiveness. The study recommends the following in accordance to the study specific objectives:

5.3.1 Organizational Dynamics Influence on CDM

Based on the research findings and the conclusion made, the OD influence on CDM was observed to be varied among the various indicators. The study recommends development of proper policy framework to guide on the establishment, sustenance and management of CDM. The emphasis should be on mechanisms for managing the diversities as a result of the inevitable differences in agency cultures, values, beliefs, philosophies, structures and procedures. This will promote co-existence of different agencies during CDM.

5.3.2 Human Dynamics and CDM

From the research findings and the conclusion made, the study recommends more investment on HD to maximize on CDM effectiveness since HD is giving out the greatest influence and also influencing most on the other dynamics. This can be done through creation of opportunities for agencies to interact regularly to help foster trust, bridge power differences, gain individual experiences, learn others strengths and weaknesses, create opportunities and platforms for sharing and above all opportunities for discussing challenges. These can be achieved through holding joint training and drills, workshops and meetings.

5.3.3 Process Dynamics and CDM

Based on the research findings and the conclusion, the study recommends creation of a single national coordinative disaster management authority replicated to county and sub county level to offer effective leadership and guidance on CDM on all disasters, with clear roles of each DMA. This will improve CDM leadership and coordination.

5.4 Suggestions for Future Research

Based on the scope and the study findings, the conclusion and the recommendations, made, the study makes the following further recommendations for future research;

i. The research limited itself to influence of IAOD on CDM in NCC, Kenya, through literature review from other regions, there seems to be a lot of similarities in disaster management collaborations. It would be useful to extend this study to other counties in the country to determine the extent to which the findings are applicable in Kenya;

ii. The percentage of influence of IAODs indicated that there are other factors that influence effectiveness of CDM operations other than the IAODs discussed, hence the need for a study to explore further on these factors;

iii. The study further recommends a comprehensive study to evaluate the influence of IAOD on collaborations in the management of national security in Kenya, since this study was limited to disaster management scenarios, which is only a component of the broader national security management architecture.

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LIST OF APPENDICES

APPENDIX I: LETTER OF INTRODUCTION

My name is CHRIS N. ZAKAYO, a postgraduate student from KENYATTA UNIVERSITY pursuing PhD in Security Studies. I am conducting a study on **Interagency Operational Dynamics and Collaborative Disaster Management in Nairobi City County, Kenya.** I am requesting that you assist me in filling the questionnaire and I promise that any information that you give will remain confidential and is going to for the purposes explained above only. You can contact me through my email account chriszakayo84@gmail.com or chriskitui@yahoo.com or through cell-phone number 0720605970. If you agree to participate in this study, please sign below.

Yours faithfully

Chris Zakayo

Consent

Respondent Signature……Date……. Telephone No……..

APPENDIX II: DISASTER MANAGEMENT AGENCIES OFFICERS QUESTIONNAIRE

Please respond to each item by ticking where applicable or filling in, do not write your name

SECTION A: DEMOGRAPHIC INFORMATION

1. What is your gender MALE [ ] FEMALE [ ] NO RESPONSE [ ]

2. Please indicate your age bracket:

Below 30YRS [ ] 31-40 YRS [ ] 41-50YRS [ ] Above 50YRS [ ]

3. Which of the following Disaster Management Agencies are you working for?

a. NPS [ ]

b. KRCS [ ]

c. NDMU [ ]

d. NDOC [ ]

e. KDF [ ]

f. NYS [ ]

g. Nairobi Fire Service [ ]

h. Others (Specify)……

4. How many years of experience do you have in Disaster Management?

a. Below 10 years [ ]

b. 10- 15 years [ ]

c. 15- 20 years [ ]

d. Over 20 years [ ]

5. Have you ever worked in collaboration with other disaster management agencies?

a. Yes [ ] b. No [ ]

6. If your answer to question five is yes, then how many years of your experience have you worked in a collaborative disaster management setting

a. Below 5 years [ ]

b. 5-10 years [ ]

c. Over 10 years [ ]

7. How would you rate your experience with inter-agency collaborations in disaster management?

a. Excellent [ ]
b. Good [ ]
c. Moderate [ ]
d. Somewhat poor [ ]
e. Extreme poor [ ]

8. If your answer to question seven is excellent, good or moderate, how would you rate the overall effectiveness of interagency collaboration arrangements you have participated in managing disasters (where Very successful = 5, Successful =4, partial =3, unsuccessful =2 and very unsuccessful =1)

a. Very successful [ ]

b. Successful [ ]

c. Partial [ ]

d. Unsuccessful [ ]

e. Very unsuccessful [ ]

SECTION B: Organizational Dynamics on Collaborative Disaster Management

1. State your degree of agreement with the following statements on organizational dynamics impact on the performance of collaborative disaster management arrangement

Key: 5-Strongly Agree, 4-Agree, 3- Undecided, 2-Disagree and 1-Strongly disagree

Organization Dynamics	**5**	**4**	**3**	**2**	**1**
Differences in agency cultures Influences effectiveness of collaborative disaster management operations					
Differences in agency cultures during Collaborative disaster management are unhealthy/impedes innovation					
Differences in agency Beliefs, values and Philosophies influences collaborative disaster management					
Agency beliefs, values and philosophies influences how agencies perceive others					
Differences in agency goals, missions and mandates influences collaborative disaster management Operations					
There is need for agencies participating in collaborative disaster management to align their missions and goals					
Agency structures and policies of participating agencies influences collaborative disaster management					
There is need for a policy to guide agencies during collaborative disaster management operations					

Agencies commitment influences collaborative disaster management					
How agencies perceive their roles during collaborative disaster management influence their commitment					
Agencies need to be involved in decision making so as to be committed towards collaborative disaster management					

SECTION C: Human Dynamics influence on Collaborative Disaster Management

2. State your degree of agreement with the following statements on human dynamics influences or impact on performance of collaborative disaster management arrangement

Key: 5-Strongly Agree, 4-Agree, 3- Undecided, 2-Disagree and 1-Strongly disagree

Human dynamics	**5**	**4**	**3**	**2**	**1**
Trust influences collaborative disaster management					
For Personnel from different agencies during collaborative disaster management need to deliver trust is needed					
Power asymmetries influences performance of collaborative disaster management					
Struggle for power and superiority during collaborative disaster management can result to unhealthy competition					
Individuals past experiences influences effectiveness of collaborative disaster management operations					

Only personnel with experience in collaborations should be included in collaborative disaster management operations					
How individuals perceive others influences collaborative disaster management performance					
Individual perception of others during collaborative disaster management determines the level of trust individual places on others					
Information sharing influences collaborative disaster management operations					
Lack of information sharing during collaborative disaster management impedes joint decision making					
Communication influences collaborative disaster management operations					

SECTION D: Process Dynamics on Collaborative Disaster Management

3. State your degree of agreement with the following statements on process dynamics impact on the performance of collaborative disaster management arrangement

Key: 5-Strongly Agree, 4-Agree, 3- Undecided, 2-Disagree and 1-Strongly disagree

Process Dynamics	**5**	**4**	**3**	**2**	**1**
Leadership influences collaborative disaster management					
Leaders need to have prior experiences in collaborations so as to be effective during collaborative disaster management operations					

Having many leaders all coordinating a single disaster scene complicates collaborative disaster management					
Agencies collaboration capacity influences collaborative disaster management					
Agency capacity to collaborate with others during collaborative disaster management is influenced by agency leaders					
Clarity in roles and responsibilities for participating agencies influences collaborative disaster management					
Personnel during collaborative disaster management like performing roles which they are well acquainted with					
How individuals form relationships impacts collaborative disaster management					
Prior interactions between disaster management agencies facilitate relationship building for collaborations					
Individuals must have prior interactions so as to form relationships for collaborative disaster management					
Differences in how individuals understand a problem influences collaborative disaster management effectiveness					
Joint decision making by agencies during collaborative disaster management enables shared understanding to problems					

SECTION E: Collaborative Disaster Management contributing factors

This section is concerned with factors that contributes to effective collaborative disaster management

1. State the degree of extent to which the following factors contribute to collaborative disaster management

where5- Very Great extent, 4- Great Extend, 3-Moderate Extend, 2-Low Extend and 1-No Extend

Contributing factors	**5**	**4**	**3**	**2**	**1**
Effective leadership					
Increased communication					
Having Clear roles and responsibilities					
Mutual respect					
Compatibility in agency structures and Procedures					
Mission alignment					
Goal convergence					
Shared understanding to problems					
Joint decision making					

APPENDIX III: KEY INFORMANT INTERVIEW GUIDE

1. How do the following factors relating to organizational dynamics influence CDM?
   a. Agency cultures
   b. Agency values, beliefs and philosophies
   c. Agency structures and policies
   d. agency goals, missions and mandates
   e. Agency commitment and perceived role in collaborations
2. In your own opinion, do you think that the following dynamics relating to human aspects can influence interagency activities in disaster management?
   a. Trust
   b. Power imbalances/asymmetries
   c. Individual perception of others
   d. information sharing
   e. communication
   f. Individuals past experiences in IA work
3. In your opinion, are interagency activities during CDM influenced by the following process aspects
   a. Leadership
   b. Collaboration capacity
   c. Relationships either formal or informal
   d. Roles and responsibilities
   e. Shared understanding of problems
4. What do you think should be done to make interagency response to disaster management effective?

APPENDIX IV: RESEARCH APPROVAL

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: kubps@yahoo.com
dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 810901 Ext. 57530

Internal Memo

FROM: Dean, Graduate School

DATE: 31st August, 2021

TO: Mr. Chris N. Zakayo
C/o Department of Security & Correction Science
KENYATTA UNIVERSITY

REF: C82/CTY/37260/17

SUBJECT: APPROVAL OF RESEARCH PROPOSAL

This is to inform you that the Graduate School Board at its meeting 25th August, 2021 approved your Ph.D. Research Proposal entitled "Interagency Operational Dynamics and Collaborative Disaster Management in Nairobi City County, Kenya".

You may now proceed with your Data collection, subject to clearance with the Director General, National Commission for Science, Technology & Innovation.

As you embark on your data collection, please note that you will be required to submit to Graduate School completed supervision Tracking and Progress Report Forms. The Forms are available at the University's Website under Graduate School webpage downloads.

By copy of this letter, the Registrar (Academic) is hereby requested to grant you substantive registration for your Ph.D. studies.

Thank you.

REUBEN MURIUKI
FOR: DEAN, GRADUATE SCHOOL

c.c. Chairman, Department of Security & Correction Science
Registrar (Academic) Att; Mr. Richard Chweya

Supervisors:

1. Dr. Peter P. Wainaina
C/o Department of Business Administration
KENYATTA UNIVERSITY

2. Dr. Duncan Ochieng
C/o Department of Security & Correction Science
KENYATTA UNIVERSITY

EM/cao

APPENDIX V: RESEARCH AUTHORIZATION

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: kubps@yahoo.com
dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 8710901 Ext. 57530

Our Ref: C82/CTY/37260/17 **Date:** 31st August, 2021

The Director General,
National Commission for Science, Technology & Innovation,
P.O. Box 30623-00100,
NAIROBI

Dear Sir/Madam,

RE: RESEARCH AUTHORIZATION FOR MR.CHRIS N. ZAKAYO - REG. NO. C82/CTY/37260/17

I write to introduce Mr. Ndunda who is a Postgraduate Student of this University. He is registered for a Ph.D. degree programme in the **Department of Security & Correction Science in the School of Security, Diplomacy and Peace Sudies.**

Mr. Ndunda intends to conduct research for Ph.D. thesis entitled, **"Interagency Operational Dynamics and Collaborative Disaster Management in Nairobi City County, Kenya".**

Any assistance given will be highly appreciated.

KENYATTA UNIVERSITY OFFICE OF DEAN 01 SEP 2021 P.O. Box 43844-00100 NAIROBI GRADUATE SCHOOL

Yours faithfully,

PROF. ELISHIBA KIMANI
DEAN, GRADUATE SCHOOL

RM/cao

APPENDIX VI: RESEARCH PERMIT

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **352859**

Date of Issue: **07/September/2021**

RESEARCH LICENSE

This is to Certify that Mr.. CHRIS NDUNDA ZAKAYO of Kenyatta University, has been licensed to conduct research in Nairobi on the topic: INTERAGENCY OPERATIONAL DYNAMICS AND COLLABORATIVE DISASTER MANAGEMENT IN NAIROBI CITY COUNTY, KENYA for the period ending : 07/September/2022.

License No: **NACOSTI/P/21/12805**

352859

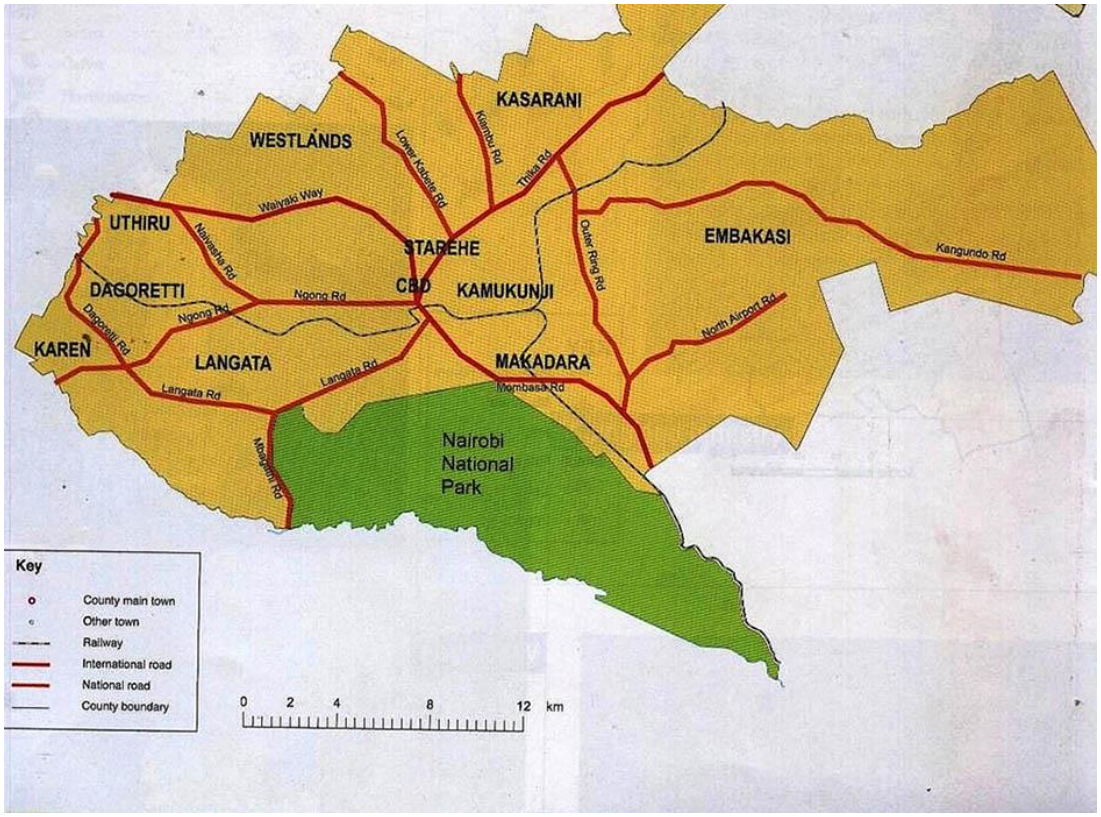
Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

APPENDIX VII: MAP OF NAIROBI CITY COUNTY



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