



NATIONAL DEFENCE UNIVERSITY-KENYA

NATIONAL DEFENCE COLLEGE

**EVALUATION OF THE ROLE OF SCIENCE AND TECHNOLOGY IN COUNTERING
VIOLENT EXTREMISM: A CASE STUDY OF KENYA DEFENCE FORCES IN BONI
FOREST LAMU COUNTY, KENYA**

BY

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A Research Project Submitted in Partial Fulfillment for the award of Degree of Master of Arts
in National Security and Strategy

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DECLARATION

I hereby declare that this research project is my original work and to the best of my knowledge it has not been presented for examination to any other University for any other award.

Signed


Date..... **18 October 2023**.....

JOSEPH KAKU MUTUA

This research project has been submitted for examination with my approval as University Supervisor;

Signed


Date: **20 October 2023**

COL (Dr) JOHN R KISILU (PhD)

DEDICATION

I dedicate this research project to my wife Florence and children Jeff and Lynn for their selfless love and unwavering support throughout the entire duration of the study.

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ABSTRACT

This study aimed to assess how science and technology contribute to coordinating multi-agency operations within Lamu County, focusing on the Kenya Defence Forces (KDF) as a case study. The study specifically examined "Operation Linda Boni" (Protect Boni) and its effectiveness in addressing the persistent insecurity challenges in Lamu County, particularly in the Boni forest. Despite government investments in this operation, there has been a lack of research on the role of science and technology in dealing with the complex operating environment of the forest. The study applied institutionalization theory and Contemporary Deterrence Theory to explain how the development of formal structures within organizations can enhance their capabilities. It hypothesized that traditional military strategies were inadequate for countering the threat from the Boni forest and that new technology was necessary. A mixed methods approach combined secondary data from various sources with primary data obtained through field interviews with practitioners and experts. Both statistical and non-empirical methods were used for data analysis. The research findings suggested that the Boni forest's challenging terrain and the active presence of Al-Shabaab radicals required specialized teams equipped with modern technology for effective operations. The study also highlighted the difficulties posed by porous borders with multiple transit points, which created challenges for multi-agency teams. It recommended further research into the role of communities living along the Kenya-Somali border and the deployment of specialized teams with modern surveillance equipment for night operations in the forest terrain. Additionally, the study recommended developing a national counter-improvised explosive devices strategy to address the threat of improvised explosive devices comprehensively.

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ABBREVIATIONS AND ACRONYMS

AQAP	Al Qaeda in the Arabian Peninsula
ATPU	Anti-Terror Police Unit
ANN	Artificial Neural Networks
CBRN	Chemical, Biological, Radiological, and Nuclear
CSIS	Center for Strategic and International Studies
CT	Counterterrorism
CVE	Countering Violent Extremism
EA	East Africa
EUROPOL	European Union Agency for Law Enforcement Cooperation
GCCS	Global Center on Cooperative Security
GoG	Gulf of Guinea
GoK	Government of Kenya
KDF	Kenya Defence Forces
MYC	Muslim Youth Centre
NCTC	National Counter Terrorism Centre
NDC	National Defence College
NDU-K	National Defence University-Kenya
NSCVE	National Strategy to Counter Violent Extremism
PVE	Preventing Violent Extremism

SSA	Sub-Saharan Africa
ST&I	Science Technology and Innovation
S & T	Science and Technology
UAVs	Unmanned Aerial Vehicles
UN	United Nations
UNDP	United Nations Development Programme
USA	United States of America
USAID	United States Development Agency
VE	Violent Extremism
VEO	Violent Extremist Organizations
VET	Violent Extremism and Terrorism

CHAPTER ONE

1.0 Introduction

Without a universally agreed-upon definition for either "terrorism" or "violent extremism," some scholars perceive these terms as interchangeable, with "violent extremism" being seen as a substitute for the politically charged term "terrorism." The primary objective of this study was to examine on how science and technology have played a role in tackling the problem of violent extremism in Kenya. In 2003, former US President George W. Bush introduced the term "violent extremism" as an alternative to the widely criticized notion of the "war on terrorism."¹ Both concepts describe efforts to achieve political goals through violence; however, they are distinct phenomena requiring different approaches to prevention and response.

The term "violent extremism concept" is often used to describe a broad range of ideologies and beliefs that endorse or justify the utilization of violence in order to achieve political, ideological, or religious objectives. It acknowledges the existence of diverse perspectives and movements that advocate for violent means to achieve their goals. However, it is important to be cautious and maintain a critical perspective, as the use of violence to achieve such objectives is widely considered unethical, unlawful, and detrimental to peaceful coexistence. In academic and policy discussions the term "violent extremism" is often used to address a spectrum of ideologies and movements associated with the use of violence. Nonetheless, it is crucial to promote dialogue, understanding, and non-violent approaches to address the root causes and concerns underlying such beliefs, with the ultimate aim of fostering peace, tolerance, and inclusivity.² On the other hand, terrorism typically refers to the utilization of violence or the expression of a violent threat by non-state actors to intimidate or coerce a government, organization, or society for political, ideological, or religious purposes. Both concepts invoke violence or the use of threats to employ violence, perpetuated by subnational groups with distinct chains of command intended to create fear in a broad target audience.³

The term "radicalization" is frequently employed to depict the process through which an individual adopts or embraces extremist beliefs, values and attitude that are fundamentally opposed to the mainstream values and norms of a society hence, becomes a terrorist or a violent

¹"George W. Bush speech delivered at the National Defense University in Washington, D.C., on February 6, 2003."

²"The United Nations. The African regional high-level conference on counter-terrorism and the prevention of violent extremism conducive to terrorism, Nairobi, Kenya (2019)."

³"Bruce Hoffman. *The Evolution of the Global Terrorist Threat* (2014), p.2."

extremist. According to Koehler, the commitment to extreme violence distinguishes a terrorist from other extremists.⁴ Critics of “violent extremism” posit that it is a vague and potentially harmful concept that governments and law enforcement agencies can misuse to target specific communities and justify repressive measures. They argue that a more nuanced and evidence-based approach is necessary to address the complex issue of violent behavior.⁵

1.1 Background of the Study

Since the emergence of the violent extremism concept in the early 2000s,⁶ the global terrorist networks and the increasing use of social media and the internet have made violent extremism a more pressing and complex challenge in the 21st century. Researchers across multidisciplinary fields studying the causes of violent behavior acknowledge that there is no single explanation for why individuals turn to violence; however, several risk factors increase the likelihood of violent behavior. They posit that understanding the causes of violent behavior and implementing effective prevention strategies requires a collaborative approach that draws on various scientific fields and involves teamwork between researchers, practitioners, and policymakers.⁷

In recent years, extremist groups have continued to use technology to spread their message and recruit new members. Research has shown that science and technology can effectively prevent and combat violent extremism by providing innovative solutions for intelligence gathering, analyzing data, and identifying potential threats. A study conducted by the United Nations Development Programme (UNDP) and the Global Center on Cooperative Security (GCCS) investigating the utilization of science and technology in preventing and countering violent extremism established that technology could help identify and track potential terrorists, monitor social media platforms for extremist content, and develop algorithms to predict possible terrorist activity.⁸ Furthermore, the study highlighted the importance of collaboration between scientists, researchers, and policymakers to ensure that technology is used effectively to counter violent extremism.⁹

⁴Koehler, Daniel. *Violence and Terrorism from the Far-Right: Policy Options to Counter an Elusive Threat*. ICCT Policy Brief, (2019), pp. 1-3.

⁵ Peter Neumann (2016). "*Radicalized: New Jihadists and the Threat to the West*."

⁶Owen Frazer and Richard Friedli. (2015) *Approaching Religion in Conflict Transformation: Concepts, Cases and Practical Implication*.

⁷David Hawkins.(1995). "*Preventing Violence: Prospects for Tomorrow*" Sage Publications p.21.

⁸Global Center on Cooperative Security, Staff, <http://www.globalcenter.org/experts/staff/> Archived 2014-03-06(Accessed on 20 October 2022).

⁹The United Nations Global Counter-Terrorism Strategy. Plan of Action to Prevent Violent Extremism. Seventieth session, Agenda items 16 and 117. accessed (08 October 2022).

In another study, the European Union Agency for Law Enforcement Cooperation (EUROPOL) accentuated the significance of technology in countering violent extremism. The EUROPOL study found that extremist groups increasingly used social media platforms to spread propaganda and recruit new members. Conversely, it also established that security agencies could use technology to track and monitor these activities and identify and disrupt terrorist networks. In addition to these studies, various technological solutions, such as algorithms that can detect and remove extremist content from social media platforms, have been developed to counter violent extremism.¹⁰ The algorithm uses machine learning to identify patterns in the language and behavior of extremist groups, allowing for the quick and effective removal of such content.

From the African perspective, scholars have examined the potential of science and technology in enhancing CVE efforts in Africa, focusing on social media, big data analytics, and biotechnology.¹¹ In their article, "The Use of Science and Technology in Countering Violent Extremism in Africa: Opportunities and Challenges," Dr. Mutuma and Kwesi (2018) highlighted the potential of science and technology in enhancing CVE efforts in Africa while also noting the challenges associated with the rapid pace of technological advancement and the need for effective regulation and oversight.¹² These studies underscore the critical role of science and technology in bolstering efforts to prevent and counter violent extremism in Africa. However, they also emphasize the importance of effective regulation, management, and ethical considerations when utilizing these tools. The UN Resolution 2178 (2014) emphasizes the significance of implementing measures adopted in accordance with international norms and standards. It acknowledges the necessity of prevention measures in addressing the issue at hand: "Violent extremism, which can be conducive to terrorism," requires collective efforts, "including preventing radicalization, recruitment and mobilization of individuals into terrorist groups and becoming foreign terrorist fighters." The United Nations Security Council calls upon member states to enhance efforts to counter this kind of violence. It recognizes that international cooperation and any measures taken by member States to prevent and combat terrorism must comply fully with the United Nations Charter.

¹⁰Twitter usage statistics. Available at <http://www.internetlivestats.com/twitter-statistics/> (accessed 10 October 2022).

¹¹Dr. John O. Kakonge (2017). "The Role of Science and Technology in Countering Violent Extremism: An African Continental Perspective" published in the African Journal of Science, Technology, Innovation and Development.

¹² Dr. Mutuma Ruteere and Dr. Kwesi Aning (2018) "The Use of Science and Technology in Countering Violent Extremism in Africa: Opportunities and Challenges."

Scholars have identified various structural drivers of violent extremism in Africa, such as political marginalization when groups feel excluded from the political process, economic factors, such as high poverty levels, unemployment, and extremist groups that may offer financial incentives to recruits to gain support. Extremists can use historical grievances, such as past conflicts or injustices, and religious and ideological justifications to recruit members or gain support.¹³ Others include weak governance and corruption, which can create conditions that allow violent extremist groups to thrive. In some cases, corrupt officials may even collude with extremist groups. Scholars emphasize that violent extremism is a complex phenomenon driven by a combination of factors rather than any single cause to address the fundamental structural drivers that contribute to its emergence.¹⁴

In 2016, the Center for Strategic and International Studies (CSIS) conducted a global survey involving 8,000 participants from eight countries in the global north hemisphere. The survey aimed to gather insights on the various aspects of violent extremism, including its scope, motivations, drivers, responses to the threat, and strategies to combat it. Respondents were asked a total of 65 questions. One significant finding of the survey was that approximately half of the respondents felt that their respective governments' efforts to contain and prevent violent extremism (PVE) had been inadequate. Moreover, 64 percent of those polled believed that the broader international community's response to the issue was also insufficient.

Regarding effective tactics to counter violent extremism, military and economic actions were overwhelmingly chosen by the respondents. However, it was noted that many participants also felt that military efforts had not been successful in addressing the problem, with the exception of China and Indonesia. The survey also revealed that a majority of respondents, around 70 percent, believed that violent extremists effectively utilized the internet to promote their ideologies and narratives. Only a minority of participants felt that the internet was adequately policed to counter this trend, highlighting concerns about the online dissemination of extremist content. It shed light on public perceptions and opinions regarding the global response to violent extremism, emphasizing the perceived shortcomings in government and international efforts, as well as the role of the internet in facilitating the spread of extremist ideologies.

According to the survey findings, respondents identified terrorism as the topmost challenge in their respective countries. Two-thirds of the participants considered violent extremism (VE) a

¹³Carver, Ashley. *Parliamentary Attempts to Define Terrorism in Canada and Australia*. In *Journal of Applied Security Research*, (2016), pp. 128-131.

¹⁴ Peter Neumann's (2016)., "Radicalized: New Jihadists and the Threat to the West": p.49.

significant problem in their nations, with Turkey, Indonesia, and France leading in this regard. Even in countries where the proportion of respondents perceiving it as a problem dipped below half, it was still regarded as a minor issue. Apart from China, at least 75 percent of those surveyed expressed fear of terrorist attacks occurring in their countries. France, Turkey, and the USA had a shared view of concern, with 60 percent, 45-50 percent, and 45-50 percent respectively.

The survey revealed a concerning pattern wherein a significant portion of participants from every country expressed the belief that violent extremist organizations could obtain and employ weapons of mass destruction during their own lifetimes. This finding reflects the widespread apprehension regarding the potential for catastrophic acts of violence. Despite the prevalent anxiety surrounding the terrorist threat, 73 percent of the participants believed that violent extremism could be resolved. This suggests a degree of optimism and hope for addressing and mitigating the issue. The survey also highlighted several major conflict zones associated with violent Islamist extremism, including Afghanistan, Iraq, Libya, Somalia, Syria, and Yemen.¹⁵

In Africa, violent extremist organizations (VEOs) operating in various regions have affiliations with well-known global terror groups like Al-Qaeda and ISIS. In particular, there has been a notable increase in activities in West Africa since January 2021, with high-profile attacks occurring in countries such as Burkina Faso, Mali, and Niger. While the Sahel region of West Africa continues to be a significant epicenter of violent extremism and terrorism (VET), the threat has gradually expanded to include the littoral states along the Gulf of Guinea (GoG).¹⁶ Several coastal states along the GoG have encountered attacks or identified the presence of violent extremist groups within specific areas of their territories.¹⁷ Ghana serves as a prominent example of how violent extremism can have contagious effects on coastal states, even if it has not directly experiencing violent extremist attacks itself.¹⁸ Unlike neighboring countries such as Burkina Faso and Côte d'Ivoire, which have encountered violent extremist attacks, Ghana has been successful in preventing such attacks despite its vulnerabilities. In July 2021, the Minister

¹⁵Downloaded from <http://institute.global/insight/co-existence/violent-islamist-extremism-globalproblem> on 27 September 2022.

¹⁶Thérroux-Bénoni, Lori-Anne and Adam, Nadia (2019) 'Hard Counterterrorism Lessons from the Sahel for West Africa's Coastal States', Available at: <https://issafrica.org/iss-today/hard-counter-terrorism-lessons-from-the-sahel-for-west-africas-coastal-states> [Accessed 29 September 2022].

¹⁷UNDOC (2021) 'UNODC Holds a National Consultative Meeting with Counter-terrorism Focal Points of Ghana', Available at: <https://www.unodc.org/westandcentralafrica/en/2020-09-28-ghana-counter-terrorism.html> [Accessed 27 September 2022].

¹⁸Asaase Radio (2021) 'Terrorist Groups are Recruiting in Ghana, says Opong Nkrumah', Available at: <https://asaaseradio.com/security/terrorist-groups-are-recruiting> [Accessed 29 September 2022].

of Information, Kojo Opong Nkrumah, confirmed this and acknowledged that terrorist groups operating in West Africa had managed to recruit some Ghanaians to support their cause. These developments highlight the expansion of violent extremism across regions in Africa, with VEOs affiliated with global terror groups exerting influence in West Africa and extending their activities into coastal states along the Gulf of Guinea. It emphasizes the need for heightened vigilance, regional cooperation, and comprehensive strategies to counter the spread of violent extremism and protect vulnerable nations from its impact.¹⁹

The Somali-based Al-Shabaab militants group abducted the British couple in September 2011 from Kiwayu Safari Village, and the subsequent travel advisories against Kenya severely hampered the tourism industry in the country. The incident triggered the Kenya Defence Forces (KDF) incursion into Somalia under Operation Linda Nchi (Protect the country). Consequently, the Al-Shabaab militants formed three elite groups to carry out attacks against the KDF and the AMISOM allies within Somalia. Jaysh Ayman militants, one of the three extremist groups comprised mainly of Kenyan fighters and supported by foreign jihadists, were deployed in Boni forest, Lamu County, to target Kenya's security agencies along the Hindi - Kiunga road, which serves as a vital route for operations by KDF into Somalia. Boni forest extending into Somalia has gained notoriety as a sanctuary for the extremists. They have been utilizing it as a base to launch attacks into Lamu as well as the neighboring counties of Garissa and Tana River. The forest area became a hotbed of violent extremist activity by the Al-Shabaab group, leading to a significant threat to national security in Kenya. The KDF deployed in Lamu County as part of the multi-agency team to protect the area and conduct counter-terrorism operations against Al-Shabaab.²⁰ The operation successfully reduced the number of attacks in the region and improved security for residents. However, it also faced criticism for alleged human rights abuses and mistreatment of civilians.

1.2 Statement of the Research Problem

Kenya has experienced extremist attacks for over a decade, with the most recent attack being in January 2019, where twenty people were killed in a hotel complex (Dusit2) in Nairobi. Boni forest in Lamu County is a major hideout for the Al-Shabaab militants responsible for the attacks. The Boni forest is known for its dense vegetation and intricate network of caves and ravines,

¹⁹Asaase Radio (2021) 'Terrorist Groups are Recruiting in Ghana, says Opong Nkrumah', Available at: <https://asaaseradio.com/security/terrorist-groups-are-recruiting> [Accessed 29 September 2022].

²⁰ El-Said, Hammed. *New Approaches to Countering Terrorism: Designing and Evaluating Counter Radicalization and De-Radicalization Programs*, Palgrave Macmillan, (2015), p. 2.

making it a challenging environment for security teams to operate in. Kenya government has implemented several strategies to counter violent extremism, one of which involves deploying a multi-agency team to eliminate the presence of the militants in the Boni forest.

The forest's juggle characteristics and the elusive nature of the militants pose a significant strain on the security teams. Despite the efforts of the security forces, the militants have persistent in carrying out sporadic attacks in the region. This has led to concerns among the local communities regarding their safety and security. The lack of a complete solution led to the scholarly quest to establish whether science and technology can assist the Kenya Defence Forces counter violent extremism in the Boni forest.

1.3 Objectives of the Study

1.3.1 General Objective. The overarching objective of the study is to analyze the role of science and technology in countering violent extremism in Boni forest, Lamu County, using the Kenya Defence Forces.

1.3.2 Specific Objectives. The specific objectives of the study include:

1. To establish the role of science and technology in countering violent extremism in Kenya.
2. To examine the successes and challenges in using science and technology to counter violent extremism in Boni forest, Lamu County.
3. To evaluate the key actors and frameworks in countering violent extremism in Boni forest, Lamu County.

1.4 Research Questions

The study was guided by the following research questions:

1. What is the role of science and technology in countering violence extremism in Kenya?
2. What are the successes and challenges in using science and technology to counter violent extremism in Boni forest, Lamu County?
3. Who are the key actors and frameworks in countering violent extremism in Boni forest, Lamu County?

1.5 Literature Review

The research study examined information from secondary sources and was generally categorized into theoretical and empirical literature. Several scholars have attempted to differentiate the subjects of terrorism, violent extremism, and the role of science and technology in countering violent extremism. This section reviews both theoretical and empirical literature within the stated study objectives.

1.5.1 Theoretical Literature Review

The study established that science and technology could significantly disrupt radicalization processes and promote positive social connections and identities. The social learning,²¹ social identity, and cognitive-behavioral theories²² provide theoretical frameworks for understanding the role of science and technology in countering violent extremism. Scholars and psychologists Albert Bandura, Henri Tajfel, and John Turner posited that individuals learn by observing and modeling the behavior of others.²³ The Social Learning Theory postulates that individuals derive their sense of identity and self-esteem from membership in various social groups. Psychologists Aaron Beck and Albert Ellis suggest that behavior is shaped by a person's thoughts, beliefs, and attitudes, which can be modified through cognitive and behavioral interventions.²⁴

The study utilized Globalization Theory as a framework to explore the role of science and technology in countering terrorism.²⁵ Globalization Theory encompasses the concept of worldwide interconnectedness and the spread of production, communication, and technologies across nations.²⁶ This process involves the intertwining of economic and cultural activities.

Within the realm of globalization theory, there are differing perspectives on the current state of the world. Some theories suggest that we now live in a postmodern era, while others argue that

²¹Bandura, A. (1977). *Social Learning Theory*. Englewood Cliffs, NJ: Prentice Hall.

²²Bandura, A. (1986). *Social Foundations of Thought and Action: A Social Cognitive Theory*. Englewood Cliffs, NJ: Prentice Hall.

²³Tajfel, H., & Turner, J. C. (1979). An Integrative Theory of Intergroup Conflict. In W. G. Austin & S. Worchel (Eds.), *The Social Psychology of Intergroup Relations* (pp. 33-47). Monterey, CA: Brooks/Cole.

²⁴Ellis, A. (1977). The Basic Principles of Rational-Emotive Therapy. In A. Ellis & R. Grieger (Eds.), *Handbook of Rational-Emotive Therapy* (pp. 13-38). New York: Springer.

²⁵Leverett, Eireann. *Cyber Terrorism: Assessment of the Threat to Insurance*; Cambridge Risk Framework series; Centre for Risk Studies, University of Cambridge, (2017), p. 12-13.

²⁶Bjola, Corneliu, and Marcus Holmes. *Digital Diplomacy: Theory and Practice*. Routledge, (2015), p. 18.

globalization has either radicalized or reached the pinnacle of modernity.²⁷ Lars, an early proponent of globalization theory, views globalization as the universalization of modernity.²⁸

Globalization theory holds significant intuitive appeal for some researchers. Others may eagerly embrace it or use it as a buzzword to establish connections with various topics they are studying, such as transnational crime, income inequality, executive compensation, genetic engineering, water monopolization, and numerous other subjects related to globalization.²⁹ However, it is important to note that specific theoretical advancements within globalization theory may not be clearly discernible at present, and the term "globalization" is often used as a catch-all phrase for any futuristic vision that authors may have at any given time.³⁰

Literature provides valuable insights and empirical evidence regarding the role of science and technology in countering violent extremism, contributing to the development of effective policies, interventions, and approaches in this critical area. Gallicchio and Lewis discuss the extensive use of artificial neural networks (ANN) and deep learning in various military applications, including target recognition, surveillance, and decision-making. The duo discusses the advantages and limitations of using ANNs in these contexts and highlights areas where further research is needed.³¹ Technology can be used to counter violent extremism through various approaches, such as prevention, intervention, and response. In prevention, technology can be used to identify potential violent extremists and prevent them from carrying out attacks. In addition, technology should be used in conjunction with other approaches, such as counseling, education, and community support, to achieve long-term outcomes. The scholars hold that technology-based interventions should be carefully designed and evaluated for effectiveness while ensuring that they do not inadvertently reinforce extremist beliefs or behaviors.

According to Mwangi (2018), various technologies such as unmanned aerial vehicles (UAVs) equipped with cameras and sensors can capture images and videos of the militants' activities, which are then analyzed to identify their locations and movements. This information is critical for the planning and execution of precise strikes against the militants. Additionally, technology

²⁷Leverett, Eireann. *Cyber Terrorism: Assessment of the Threat to Insurance*; Cambridge Risk Framework series; Centre for Risk Studies, University of Cambridge, (2017), p. 12-13.

²⁸Lars, Skyttner. *General Systems Theory: Problems, Perspective, Practice*. World Scientific Publishing Company (2006), p. 17.

²⁹Bjola, Corneliu, and Marcus Holmes. *Digital Diplomacy: Theory and Practice*. Routledge, (2015), p. 18.

³⁰Ngundi, Vincent. *ISACA-Kenya Annual Conference 2018 National Cyber security a Multi-Stakeholder Approach*. National KE-CIRT/CC and Cyber security, (2013), p. 2.

³¹Gallicchio, C., & Lewis, M. (2017). Artificial neural networks and deep learning in military applications: A review. *Neural Computing and Applications*, 28(10), 2963-2976. DOI: 10.1007/s00521-016-2220-0.

can be used to disrupt the communication networks of the militants. According to Mutwiri (2017), the KDF has employed jammers to block the militants' communication signals, making it difficult for them to coordinate their activities. The jammers are also used to intercept the militants' communication, which is then analyzed to gather intelligence about their plans and activities.

It is essential to recognize that KDF has made successes in various fields of research and development, particularly in troop sustainability in the field through the development of field kitchen, production of safe drinking water, and use of dried foodstuffs.³² The focused implementation of this policy and strategy is aimed at operational innovations to assist the KDF in operating in challenging operating environments within its professional tenets in adherence to international laws of war.³³ It will also seek to establish and sustain Kenya's distinction in developing and managing science, technology, and innovation.³⁴ The technological innovation approaches to counter-terrorism have not received significant attention compared to other aspects of counter-terrorism efforts. However, there is an increasing recognition of the significance of employing technology to tackle violent extremism enhance counter-terrorism endeavors.³⁵

Within the framework of soft power, which involves influencing others through non-coercive methods such as culture, values, and economic appeal, technology can play a significant role. Joseph Nye's concept of soft power emphasizes the use of attraction and persuasion to shape preferences and behavior. In the context of counter-terrorism and countering violent extremism (CVE), technology can be utilized to foster positive narratives, facilitate communication and engagement, and strengthen social cohesion.³⁶

According to Huq, the perception of legitimacy regarding states' policies enhances its soft power and acceptance among others.³⁷ Thus a 'soft power' approach to CVE seeks to reverse the process of radicalization by facilitating the individual's reintegration into the mainstream society. This is their radicalization and disconnecting them from their extreme beliefs and social connections.³⁸

³² Ibid, (2013), p. 5.

³³ Ibid, Nairobi, Kenya (2019).

³⁴ "Wilson, Brian. *Soft Systems Methodology: Conceptual Model Building and its Contribution*. Wiley, (2001), pp. 89-90.

³⁵The United Nations. The African regional high-level conference on counter-terrorism and the prevention of violent extremism conducive to terrorism, Nairobi, Kenya (2019).

³⁶Nye, Joseph. *Power in the Global Information Age: From Realism to Globalization*. London and New York: Routledge, (2004), p. 19.

³⁷Huq, Sabiha. *Soft-Power, Culturalism and Developing Economies: The Case of Global Ibsen*, Plaggrave Communication, Volume 5, (2019), pp. 2-3.

³⁸ Ibid, (2019), p. 7.

The occurrence of a significant number of terrorist incidents in a particular month is often followed by a decrease in incidents in the subsequent month. This pattern suggests that the decision of terrorist groups to carry out attacks is influenced by the occurrence of similar attacks in other locations. This phenomenon is referred to as the "concept of contagion," where the actions of one group inspire or influence the actions of others.³⁹ The phenomenon of periodic 'waves' of violent extremism can have serious consequences, including radicalizing individuals, forming extremist groups, and perpetration of violent acts.⁴⁰ Increasing empirical evidence suggests that terrorism exhibits contagiousness characteristics, particularly concerning the timing of terrorist attacks.⁴¹ Soft power resides in the capacity to attract and persuade rather than resorting to coercion. Understanding extremist movements' underlying drivers and dynamics and developing effective strategies for countering radicalization is essential.⁴²

Avis maintains that addressing the issue of violent extremism is of utmost importance given its escalating threat, and efforts to prevent and counter it have primarily concentrated on reducing the influence and opportunities available to recruiters.⁴³ A fundamental aspect of this approach involves understanding the process of radicalization and identifying the circumstances and factors that contribute to individuals becoming violent extremists.

Crenshaw suggests that a significant aspect of the psycho-sociological research tradition is the concept that terrorism exhibits a "contagious" nature.⁴⁴ This theory, introduced by Martha Crenshaw in 1983, proposes that terrorist attacks are not random occurrences, but instead display a discernible pattern of periodic cycles or waves.⁴⁵ The advancement of technology has facilitated specialized data collection for Countering Violent Extremism (CVE) efforts, benefiting legal experts in multiple ways.⁴⁶ For instance, law enforcement agencies can store

³⁹The United Nations. The African regional high-level conference on counter-terrorism and the prevention of violent extremism conducive to terrorism, Nairobi, Kenya (2019).

⁴⁰Huq, Sabiha. *Soft-Power, Culturalism and Developing Economies: The Case of Global Ibsen*, Plagrave Communication, Volume 5, (2019), pp. 2-3.

⁴¹Nye, Joseph. *Power in the Global Information Age: From Realism to Globalization*. London and New York: Routledge, (2004), p. 22.

⁴²The United Nations. The African regional high-level conference on counter-terrorism and the prevention of violent extremism conducive to terrorism, Nairobi, Kenya (2019).

⁴³The United Nations. The African regional high-level conference on counter-terrorism and the prevention of violent extremism conducive to terrorism, Nairobi, Kenya (2019).

⁴⁴Crenshaw, Martha. *Terrorism, Legitimacy and Power*, Middletown, Connecticut: Wesleyan Univ. Press, (1983), p. 15.

⁴⁵Waldman, Peter. Revenge without rules: On the renaissance of an archaic motif of violence, *Studies in Conflict and Terrorism* 24. (2001), pp. 435-450.

⁴⁶Waldman, Peter. Revenge without rules: On the renaissance of an archaic motif of violence, *Studies in Conflict and Terrorism* 24. (2001), pp. 435-450.

DNA and fingerprints in databases for swift suspect identification.⁴⁷ Data analysis aids law enforcement in recognizing patterns in criminal activity and taking appropriate measures.⁴⁸ Moreover, the advent of big data has facilitated the development of rapid identification systems, enabling law enforcement and prosecution officials to conduct basic searches to analyze an individual's criminal history.⁴⁹

The contagion theory also pertains to the observed occurrence where elevated levels of Violent Extremism (VE) in one country frequently correspond to an escalation of VE incidents in neighboring states within the same region. This increase can be attributed to various factors, including the involvement of the same organization, emergence of "second-generation" groups, foreign sympathizers and coalition partners, or even mere imitators.⁵⁰ Contagion can manifest at two levels and can unfold through two distinct mechanisms. However, the predominant manifestation involves the adoption of a general terrorist strategy without direct contact.⁵¹

It is essential to recognize that comprehending the contagious nature of terrorism enables security forces to consider effective strategies for deterring various key actors, including militant leaders, religious ideologues, financiers, recruiters, bomb-makers, foot soldiers, suicide and non-suicide operatives, as well as state, societal, and community supporters.⁵² Likewise, security forces can contemplate exerting influence over specific stages within the Violent Extremism (VE) process itself, encompassing all the individual actions necessary for acts of violence to take place, ranging from recruitment to the actual detonation of explosives.

Contemporary deterrence theory refers to using military and non-military means to dissuade potential adversaries from taking actions against one's interests. Science and technology can play a crucial role in enhancing deterrence.⁵³ Employing surveillance and reconnaissance technologies to track the movements and actions of extremist groups operating in forested areas can offer advance notice of imminent attacks. This proactive approach enables security forces to

⁴⁷Bryden, Matt and Bahra, Premdeep. *East Africa's Terrorist Triple Helix: The Dustit Hotel Attack and the Historical Evolution of the Jihadi Threat*. Volume 12, Issue 6, (2019), pp. 12-18.

⁴⁸Bognoe, Camilla. *Understanding the role of gender in preventing and countering violent extremism and radicalization that lead to terrorism, good practices for law enforcement*. Security and cooperation, (2016), p. 9.

⁴⁹Leverett, Eireann. *Cyber Terrorism: Assessment of the Threat to Insurance*; Cambridge Risk Framework series; Centre for Risk Studies, University of Cambridge, (2017), p. 12-13.

⁵⁰Botha, Anneli. *Radicalisation in Kenya: Recruitment to Al Shabaab and the Mombasa Republican Council*. ISS Paper 265, (2014), p. 107.

⁵¹Crenshaw, Martha. *Terrorism, Legitimacy and Power*, Middletown, Connecticut: Wesleyan Univ. Press, (1983), p. 18.

⁵²Botha, Anneli. *Radicalisation in Kenya: Recruitment to Al Shabaab and the Mombasa Republican Council*. ISS Paper 265, (2014), p. 109.

⁵³Lieber, K. A., & Press, D. G. (2017). The new era of counterforce: Technological change and the future of nuclear deterrence. *International Security*, 41(4), 9-47.

implement preventive measures effectively, reducing the likelihood of such attacks from occurring. Additionally, science and technology can be used to disrupt the communication networks and supply chains of extremist groups operating in the forest.⁵⁴ This can weaken their operational capabilities and limit their ability to launch attacks. Furthermore, science and technology can be used in countering extremist propaganda and radicalization efforts. This will involve exploiting social media monitoring and analysis tools to identify and counter extremist messaging and virtual reality simulations to provide alternative narratives and perspectives.⁵⁵

Contemporary deterrence theory emphasizes the importance of using various military and non-military means to deter potential adversaries. In countering violent extremism within Boni Forest, Lamu County, science and technology can serve as invaluable instruments. These tools can enhance surveillance and reconnaissance capabilities, disrupt communication networks and supply chains utilized by extremists, and effectively counter extremist propaganda and efforts of radicalization. This theory is applicable to a range of sub-state and non-state security challenges, such as insurgency, terrorism, radicalization, organized transnational crime, cyber insecurity, and piracy. Additionally, more conventional inter-state security dilemmas, including those arising from "rogue" regimes, nuclear and missile proliferation, and advancements in missile technology and defense, have been included in the deterrence agenda.⁵⁶

Mannes contends that Science, Technology, and Innovation have the potential to be employed in countering violent extremism by encompassing a more comprehensive comprehension of deterrence.⁵⁷ While the primary emphasis of deterrence remains on the would-be challenger (typically referred to as the actor being deterred) and their undesired actions, the manner in which a defender (the actor carrying out the deterrence) influences behavior is broadened to incorporate arguments that extend beyond the traditional boundaries of deterrence theory.⁵⁸

According to Wilner, a variety of militant activities such as propagating violent ideologies, indoctrination, recruiting individuals, and supporting militancy to orchestrate targeted attacks can be deterred through the use of customized threats. Moreover, equal attention is given to preventing both conventional and Chemical, Biological, Radiological, and Nuclear (CBRN)

⁵⁴Huth, P. K. (1988). *Extended deterrence and the prevention of war*. Yale University Press.

⁵⁵Tannenwald, N. (2007). The nuclear taboo: The United States and the normative basis of nuclear non-use. *International Organization*, 61(1), 139-172.

⁵⁶ Ibid, (2012), p. 12.

⁵⁷Mannes, Aaron. Testing the Snake Head Strategy: Does Killing or Capturing its Leaders Reduce a Terrorist Group's Activity? *9 J. International Policy Solutions Journal*, (2008), p. 4.

⁵⁸ Ibid, (2008), p. 9.

terrorism.⁵⁹ The impact of information technologies is considered to be incredibly substantial because security agencies increasingly cannot complete their tasks without them.⁶⁰ An example of this can be seen in South Africa, where law enforcement has undergone significant transformation due to the introduction of new technologies, methods, and innovative ideas driven by technological advancements. Police and law enforcement agencies across the country are leading this transformation by spearheading inventive concepts, adjusting to changing technical landscapes, and incorporating valuable input from officers and community partners.⁶¹

In conclusion, the literature suggests that science and technology can significantly counter violent extremism in a forested area. The integration of technology in intelligence gathering, surveillance, and communication disruption can enable a force to track and monitor the movement of militants, gather intelligence about their plans, and conduct precise strikes to eliminate them. Nevertheless, it is important to recognize that relying solely on technology is insufficient to address the issue of violent extremism. A comprehensive approach that encompasses community engagement, de-radicalization programs, and tackling the underlying causes of violent extremism is equally essential in effectively countering the threat of violent extremism in the region.

1.5.2 Empirical Literature Review

The empirical review examined key concepts and ideas related to terrorism that evokes fear. The term "terrorism" itself emerged during the Reign of Terror in France (1793-1794).⁶² Throughout history, various instances of violent coercion have been used by powerful entities, such as the Roman Empire, employing tactics ranging from individual crucifixions to widespread genocide, in order to subdue individuals and nations. During the French Revolution, over 20,000 people were executed by the guillotine within a span of a few months. Notable examples of state terrorism in more recent times include Nazi Germany, the Stalinist Soviet Union, Maoist China, Pol Pot's Cambodia, and numerous other dictatorships and totalitarian regimes.⁶³

⁵⁹Wilner, Alex. *Targeted Killings in Afghanistan: Measuring Coercion and Deterrence in Counterterrorism and Counterinsurgency*, 33 Stud. Conflict and Terrorism 307, (2010), p. 6.

⁶⁰Leverett, Eireann. *Cyber Terrorism: Assessment of the Threat to Insurance*; Cambridge Risk Framework series; Centre for Risk Studies, University of Cambridge, (2017), p. 12-13.

⁶¹Bjola, Corneliu, and Marcus Holmes. *Digital Diplomacy: Theory and Practice*. Routledge, (2015), p. 18.

⁶²Records, Jeffrey. *Bounding the Global War on Terrorism*. Carlisle Barracks: Strategic Studies Institute. US Army War college, (2003), pp. 4-6.

⁶³ Ibid, (2003), p. 8.

According to Silke, not only state actors but also non-state perpetrators have historically employed violence as a means to intimidate their adversaries. Examples of this include the Jewish Zealots who assassinated their enemies in their resistance against the Roman Empire, the Assassins who targeted crusaders in the Holy Land in 1605, Guy Fawkes' attempt to destroy the British Parliament, and anarchists who carried out assassinations of high-ranking officials and heads of state. One of the most consequential acts of terrorism in human history was the assassination of Archduke Franz Ferdinand, which served as the catalyst for the outbreak of the First World War, leading to devastating consequences. The 11 September 2001 terror attack clearly showed that religion can be used to pursue violent ends.⁶⁴ Rappaport and Alexander assert that terrorism, as a highly intricate and ever-evolving phenomenon, occupies a prominent position on national, regional, and international agendas. Taking diverse manifestations, violent extremism is connected to a wide range of groups. The differentiation between a terrorist and other designations, such as guerrillas or freedom fighters, remains a subject of ongoing debate and largely relies on the perspective adopted.⁶⁵

It is important to recognize that the key differentiating factor between a terrorist and other extremists lies in their commitment to violence. This commitment develops gradually and leads to a fundamental shift in individuals' perception of themselves and the world around them.⁶⁶ The precise nature of this transformation is not yet fully comprehended. Violent extremism is influenced by both external factors, including domestic and international circumstances outlined in the United Nations Global Counterterrorism Strategy, and internal or personal factors.⁶⁷ The latter includes the interpretation of the external environment and can be influenced by psychological aspects that directly relate to political socialization.⁶⁸ The failure of the complex power or security-based approaches to stem the dominant rise of radicalization and terrorist activities globally has shifted policy focus to Soft power models.

Violent extremism is an evolving process in which individuals come to consider terrorist violence as a potential, and sometimes even legitimate, course of action. The factors that

⁶⁴Silke, Alfred. *Terrorists, Victims and Society: Psychological Perspectives on Terrorism and its Consequences*, England, John Wiley and Sons, (2013), p. 23.

⁶⁵ Rapoport, David and Yonah, Alexander. *The Rationalization of Terrorism*. Maryland: University Publications of America, (1982), p. 18.

⁶⁶Abdisaid, Ali. *The Al-Shabaab Al-Mujahidiin: A profile of the first Somali terrorist organization*. Institute fur Strategie Politik Sicherheits und Wirtschaftsberatung (ISPSW), Berlin, Germany, (2008), pp. 37-41.

⁶⁷ The United States Agency for International Development (USAID). *The development response to violent extremism and insurgency*. USAID Policy. Washington D.C.: USAID, (2014), pp. 16-18.

⁶⁸ Waldman, Peter. *Revenge without rules: On the renaissance of an archaic motif of violence*, Studies in Conflict and Terrorism 24 (6) (2001), pp. 435-450.

contribute to terrorist radicalization are diverse and intricate, and they combine in unique ways for each individual. There is no universal profile that fits all terrorists, nor is there a straightforward trajectory that leads individuals to engage in terrorism.⁶⁹ Constructing profiles based on stereotypical assumptions related to religion, race, ethnicity, gender, or socio-economic status is both discriminatory and ineffective. Such approaches fail to capture the complexity and individuality of the radicalization process and can hinder efforts to effectively address the root causes of terrorism. This one might ask what factors would make the Nigerian government want to pursue a soft power policy and what elements will constitute its soft power strategy.⁷⁰

The CVE encompasses policies, programs, and interventions aimed at deterring individuals from participating in violent acts linked to radical political, social, cultural, and religious ideologies and groups. Its relationship to Counter-terrorism (CT) policy and practice can vary depending on one's perspective.⁷¹ According to Nye, by employing soft-power strategies in countering violent extremism, activists can effectively engage with individuals in safer environments and foster innovation in these fields.⁷² Nonetheless, counter-terrorism efforts that embrace the efficacy of soft power may yield greater success compared to those reliant on the use of force.⁷³ Assumptions or deductions regarding the spread of violent behavior often stem from observations and statistical data surrounding exceptionally gruesome incidents.

Hoyt asserts that employing technological methods is the most effective way to connect with vulnerable youth and those from marginalized communities.⁷⁴ In a survey, respondents identified various avenues for community outreach and engagement, including educational programs, sports, arts, cultural events, social media, broadcast media, and peer-to-peer groups. When engaging in counter-violent extremism efforts, it is crucial to prioritize the safety and security of young activists.⁷⁵ By adopting innovative technological approaches to counter violent extremism, activists can find creative ways to engage with others in safer environments and contribute to much-needed advancements in this field.⁷⁶ In the context of de-contagion, security forces must

⁶⁹Nye, Joseph. *The Future of Power*. New York: Public Affairs, (2011), pp. 12-15.

⁷⁰Rapoport, David and Yonah, Alexander. *The Rationalization of Terrorism*. Maryland: University Publications of America, (1982), p. 22.

⁷¹Koehler, Daniel. *Violence and Terrorism from the Far-Right: Policy Options to Counter an Elusive Threat*. ICCT Policy Brief, (2019), pp. 1-3.

⁷²Nye, Joseph. *Power in the Global Information Age: From Realism to Globalization*. London and New York: Routledge, (2014), p. 19.

⁷³The United Nations. *The African regional high-level conference on counter-terrorism and the prevention of violent extremism conducive to terrorism*, Nairobi, Kenya (2019).

⁷⁴“Hoyt, Timothy. *Pakistan, an Ally by Any Other Name*. U.S. Naval Institute Proceedings 137(2011), pp. 44-50.

⁷⁵ *Ibid*, (2011), p. 53.

⁷⁶The United Nations. *The African regional high-level conference on counter-terrorism and the prevention of violent extremism conducive to terrorism*, Nairobi, Kenya (2019).

genuinely and sincerely engage with civil society and communities while maintaining transparency. The theory of contagion can also help explain the spread of terrorism, and efforts to counter it involve disrupting the ideological spread by breaking the cycle of its contagious message.

The existing deterrence approaches in countering terrorism have not been thoroughly explored.⁷⁷ Limited comprehensive research has been conducted on the role of soft power in Al-Shabaab activities and the efforts of Somalia and Kenya's governments to put an end to terror campaigns.⁷⁸ Rather than solely focusing on values related to traditional state-based deterrence, such as sovereignty, territorial control, political integrity, spheres of influence, and economic strength, deterring terrorism involves targeting the values that militants hold dear. These values include publicity, operational and tactical success, strategic and tactical victories, leadership, group cohesion, trust and camaraderie, popular sympathy and social acceptance, religious and political legitimacy, prestige, personal glory, freedom of movement and safe havens, wealth, and other material assets. In other words, when contemplating deterrence strategies against terrorism, security forces need to broaden their perspective to encompass values and assets beyond those typically associated with coercive relationships between states.⁷⁹

Indeed, while many militant groups may lack traditional territorially based assets that can be targeted through conventional threats of punishment or retaliation, they do possess and strive to safeguard other elements that can be subjected to state pressure. This challenge is often referred to as the "return address problem." These elements may include territorial footholds and safe houses, weapons caches, smuggling routes, influential and charismatic leaders, or individuals within the state who facilitate their activities. Despite the absence of a fixed territory, militants still have valuable assets that can be disrupted, restricted, or destroyed by the state as a means of deterrence.⁸⁰

According to Zimmerman, al Shabaab, officially known as *Harakat Al Shabaab Al Mujahidin* ("Mujahidin Youth Movement"), emerged approximately ten years ago in Somalia during a period when Islamist and clan-based militias were proliferating.⁸¹ Presently, Al-Shabaab appears to be a hybrid entity, combining characteristics of a locally-focused Islamist insurgent group with

⁷⁷Ibid.

⁷⁸ Ndonga, Simon. *Kenya: Church Grenade Attacker A Known Terrorist*. All Africa, (2012), p. 5.

⁷⁹The United Nations. *The African regional high-level conference on counter-terrorism and the prevention of violent extremism conducive to terrorism*, Nairobi, Kenya (2019).

⁸⁰ Ndonga, Simon. *Kenya: Church Grenade Attacker A Known Terrorist*. All Africa, (2012), p. 5.

⁸¹Zimmerman, Katherine. *From Somalia to Nigeria*. The Weekly Standard, United Nations Monitoring Group on Somalia and Eritrea, (2011), p. 90.

those of an international terrorist affiliate of Al Qaeda. The root causes of Al-Shabaab's terrorism are diverse, but the group established formal ties with Al Qaeda in February 2012 and maintains connections with Al Qaeda in the Arabian Peninsula (AQAP).⁸² Notably, Al-Shabaab claimed responsibility for the attack on a shopping mall in Nairobi, Kenya, on September 21, 2013. This assault resulted in the deaths of more than sixty individuals, including US citizens, and left over a hundred others injured. The group is also known for engaging in assassinations, suicide bombings, hostage-taking, and indiscriminate attacks in civilian-populated areas within Somalia.⁸³

The United States has provided assistance to Kenya in enhancing its domestic security forces and military capabilities with the aim of deterring the violent extremism propagated by the Al-Shabaab group and its associated ideologies. This support has involved the development of various entities within Kenya, including the Kenya Defence Forces Rangers, the National Intelligence Service (Kenya's domestic and foreign intelligence agency), the General Service Unit (a paramilitary reserve unit primarily deployed to address civil disorders), and the Anti-Terror Police Unit (ATPU), which is a specialized police unit responsible for countering terrorist activities.⁸⁴ These domestic security forces and military services play a crucial role in Kenya's efforts to combat the formidable adversary that is Al-Shabaab.

Understanding the dynamics of how radical ideologies spread is of utmost importance in sociological research and in devising effective countermeasures.⁸⁵ However, there is still a lack of comprehensive theoretical understanding regarding social contagions such as radicalization. Moreover, integrating theories that encompass the entire process of radicalization and its resulting outcomes, such as terrorism and the occurrence of catastrophic terrorist events, remains an area that requires further development.⁸⁶

Botha discovered a decline in Al-Shabaab-inspired radicalization due to regular surveillance of mosques by security personnel in the area.⁸⁷ However, according to interviews conducted by the International Crisis Group in 2012, it is possible that jihadist radicalization has gone underground, potentially taking place in people's homes or in Madrasas. Eastleigh has the highest

⁸²Dettmer, Jamie. *Al-Shabab's Jihadi Recruitment Drive in Minnesota*, The Daily Beast, (2013), p. 15.

⁸³ Ibid, (2013), p. 21.

⁸⁴Botha, Anneli. *Assessing the Vulnerability of Kenyan Youths to Radicalisation and Extremism*. Institute for Security Studies Paper 245, (2013), p. 13.

⁸⁵Smith, James. *Strategic Analysis, WMD Terrorism, and Deterrence by Denial*, in *Deterring Terrorism: Theory and Practice 159*, Andreas Wenger and Alex Wilner eds., (2012), p. 9.

⁸⁶ Ibid, (2019).

⁸⁷Botha, Anneli. *Radicalisation in Kenya: Recruitment to Al Shabaab and the Mombasa Republican Council*. ISS Paper 265, (2014), p. 107.

concentration of Madrasas per square kilometer in Kenya.⁸⁸ The Muslim Youth Centre (MYC), also known as Pumwani Muslim Youth, is headquartered in Nairobi but has also established a strong network of members and sympathizers in Eldoret County, Garissa County, and Mombasa County.

The National Strategy on Countering Radicalization and Terrorism is a flexible framework designed to combat radicalization. It acknowledges the constantly changing nature of the terrorism threat and the various ways in which it manifests.⁸⁹ The strategy aims to increase awareness of the current understanding of radicalization to violence so that practitioners, front-line workers, and Kenyans can better contribute to prevention efforts. Equipping individuals with up-to-date information and tools is crucial for implementing effective counter-terrorism measures. Therefore, soft power initiatives are employed to counter violent extremism and focus on early intervention targeting the general population, aiming to prevent the emergence of harmful behaviors.

Ngundi argues that the cyber system now facilitates the availability of almost anything imaginable, leading to a shift in both legal and illegal activities to cyberspace.⁹⁰ As a result, digital technology and innovation play a vital role in policing, security management, and crime prevention. In the Kenyan context, countering violent extremism involves addressing the root causes of terrorism and utilizing various approaches to prevent it. Counter-terrorism encompasses the practices, tactics, frameworks, techniques, and strategies employed by governments, militaries, police departments, and corporations to combat both real and perceived terrorist threats and acts.⁹¹

1.5.3 Gaps in the literature

Examining theoretical and empirical literature underscores that counter-violent extremism strategies vary significantly depending on the specific contextual factors, the nature of extremism, and its scale. However, it is essential to note that research investigating the utilization of science and technology in countering violent extremism is notably lacking. This scarcity of research can be attributed to factors such as insufficient funding, limited interest, and a shortage of expertise

⁸⁸ Ibid, (2014), p. 107.

⁸⁹The United Nations. *The African regional high-level conference on counter-terrorism and the prevention of violent extremism conducive to terrorism*, Nairobi, Kenya (2019).

⁹⁰Ngundi, Vincent. *ISACA-Kenya Annual Conference 2018 National Cyber security a Multi-Stakeholder Approach*. National KE-CIRT/CC and Cyber security, (2013), p. 2.

⁹¹Schlossberg, Scott and Chase, Michael. *Evidence of a Growing Elephant Poaching Problem in Botswana*. Elephants Without Borders, Kasane, Botswana, (2019), pp. 1-4.

in this specialized field. Consequently, there exists a noteworthy gap in empirical evidence required to substantiate the efficacy of science and technology in the context of counter-violent extremism. The principal challenge lies in the inherent complexity of accurately quantifying the impact of these technological interventions and conducting rigorous evaluations to assess their overall effectiveness.

Moreover, the existing body of literature inadequately addresses the region's unique cultural, social, and political dynamics. These dynamics are paramount in comprehending both the challenges and opportunities associated with utilizing science and technology in the context of counter-violent extremism. Furthermore, the ethical dimensions of this application, including concerns related to privacy, potential data misuse, and unforeseen consequences, have been insufficiently explored. Bridging these research gaps is paramount in achieving a more comprehensive understanding of the role played by science and technology in the endeavor to counter violent extremism, particularly within the operational domain of the Kenya Defence Forces (KDF) in the Boni Forest.

Future research endeavors may explore the potential applications of advanced technologies, such as surveillance systems, data analytics, and communication tools, to augment counter-extremism efforts. Moreover, it is imperative to conduct rigorous evaluations and assessments to quantify the impact of these technological interventions and ascertain their effectiveness in preventing and mitigating violent extremist activities within the Boni Forest region. The resultant knowledge from such studies will furnish invaluable insights for policymakers, practitioners, and security forces actively combating violent extremism. This knowledge will enable them to make well-informed decisions and formulate targeted strategies rooted in evidence-based approaches.

Additionally, the review underscores the strategic importance of addressing the manipulation of susceptible individuals by extremists through the dissemination of particular ideologies. Consequently, it is incumbent upon political leaders and clerics to provide clear and unequivocal guidance on cultural, religious, and political diversity matters. Such guidance promotes tolerance and cooperation among diverse societies, thereby contributing to countering violent extremism.

1.6 Justification of the Study

1.6.1 Academic justification

This study aims to contribute to scholarly literature on the countering violent extremism by military forces in Kenya, by providing new knowledge to multiple stakeholders, multi-agencies and also to enhance skills and deeper understanding on approaches to countering terrorism in Kenya so as to upscale technology in countering violent extremism measures. The study is justified based on the knowledge gap in research on using science and technology to counter violent extremism in a forested environment. It will benefit academia with a clear understanding of the security operations in the forest and provide easy access to reference materials and rich data for further research.

1.6.1 Policy justification

This study is essential to the policymakers in Kenya, particularly the Ministry of Defence and other relevant security agencies, to improve policy practices when deploying in similar operating environments such as Boni forest for better management and personnel protection. The study will benefit other stakeholders in the multi-agency setting to improve their policy making and practice.

1.7 Theoretical Framework

The study was guided by institutional theory in explaining how organizations operate within a particular context, how environmental pressure influences them, and how they can maintain their legitimacy within their environment. It will explain why the research problem under study exists. The theoretical framework acts as the structure that holds or supports a theory of a given research studies.

1.7.1 Institutional Theory

Institutional theorists emphasize that the institutional environment exerts a significant influence on the development of formal structures within organizations, often surpassing the impact of market pressures. According to this perspective, organizations that are early adopters of innovative structures aimed at enhancing technical efficiency are likely to gain legitimacy within their environment. As these innovative structures become increasingly accepted and endorsed,

there comes a point where not adopting them is viewed as "irrational and negligent" or even becomes a legal requirement. In essence, the institutional environment shapes the norms, values, and expectations that organizations must adhere to in order to gain legitimacy and maintain their standing within the broader social and regulatory context. This institutional pressure can drive organizations to adopt new structures, practices, and technologies that are perceived as more efficient or effective. By doing so, organizations align themselves with the prevailing institutional norms, which can confer legitimacy and enhance their reputation among stakeholders.

The process of institutionalization involves not only formalizing these innovative structures within an organization but also ensuring their broader acceptance and recognition within the institutional environment. Once a particular structure or practice becomes widely legitimized, it becomes increasingly difficult for organizations to resist its adoption without facing potential penalties or being seen as deviant or outdated. According to Sandre, applying technological innovation to activities of law enforcement has brought about a revolution in the ability of police to, on the one hand, respond to real-time crime and, on the other hand, to anticipate and establish problems, ascertain their cause and create strategic plans that improve an agency's crime prevention.⁹² According to Pelling, for security institutions to keep crimes such as hacking, armed robbery, kidnapping, rape, murder, arson, bomb attacks, and burglary, among others, in check, there is a need to adopt both hard and soft technological use.⁹³

1.7.2 Contemporary Deterrence Theory

In this study, Contemporary Deterrence Theory was utilized as a framework. Silke explains that Deterrence theory refers to a body of academic work that was predominant in the security literature of the United States and Western Europe after World War II.⁹⁴ It encompasses the strategy in which one power effectively employs the threat of retaliation to prevent an adversary's attack.⁹⁵ Contemporary deterrence theory, in particular, assists researchers in comprehending how criminal justice policies and interventions can be designed to maximize

⁹² Sandre, Andreas. *Digital Diplomacy: Conversations on Innovation in Foreign Policy*. Rowman & Littlefield, (2015), p. 8.

⁹³ Pelling, Jon. *When Doing Becomes the Message: The Case of Swedish Digital Diplomacy*. In *Digital Diplomacy: Theory and Practice*, Routledge, (2015).

⁹⁴ Silke, Alfred. *Terrorists, Victims and Society: Psychological Perspectives on Terrorism and its Consequences*, England: John Wiley and Sons Ltd, (2013), p. 23

⁹⁵ Nye, Joseph. *Power in the Global Information Age: From Realism to Globalization*. London and New York: Routledge, (2014), p. 19.

their deterrent impact. It provides a conceptual framework for understanding the relationship between punishment, law enforcement, and criminal behavior, thereby informing research, policy development, and the refinement of criminal justice programs and interventions.

In this specific study, the National Strategy to Counter Violent Extremism (NSCVE) was analyzed to identify any gaps, particularly regarding the handling of armed extremists. The objective was to assess the strategies that can mobilize all sectors of Kenya's social, religious, and economic spheres to vehemently and consistently reject radicalization and violent extremist ideologies. By employing the lens of Contemporary Deterrence Theory, the researchers aimed to provide suitable recommendations for enhancing the effectiveness of the NSCVE and addressing any identified shortcomings.

1.8 Research Methodology

1.8.1 Research design

The research design employed in this study adhered to a descriptive research design framework, with the overarching objective of systematically collecting, quantifying, and scrutinizing data as a means of addressing the specific research inquiry at hand.⁹⁶ This design is conventionally employed to delineate the attributes or conduct of a specific population or phenomenon. In order to foster a comprehensive comprehension of the research quandary, the study adopted a mixed-method cross-sectional survey approach during the months of November and December 2022. The utilization of this approach facilitated the collection of both qualitative and quantitative data, affording the researchers a broad spectrum of information pertinent to the subject of investigation. Qualitative data, comprising open-ended survey responses and interviews, offered profound insights and viewpoints from the study participants. Conversely, quantitative data, consisting of survey questionnaires with closed-ended inquiries, yielded numerical data amenable to statistical analysis.

The study's overarching goal was to ensure the impartiality, dependability, and representativeness of the findings. To attain this, the researchers selected a sample from practitioners and stakeholders affiliated with various Ministries, Departments, and Agencies, as well as local stakeholders within Lamu County. By encompassing a diverse array of participants with varying backgrounds and affiliations, the researchers aimed to enhance the reliability and

⁹⁶ Kothari, C.R (2005), "*Research Methodology: Methods and Techniques*" New Age Publishers, Marsh D. and Stolker, G (2010) *Theory and Methods of Political Science*. London: Palyave Macmillan.

validity of the study's findings. The adoption of a mixed-method approach further bolstered the study's capacity to provide a holistic comprehension of the research problem through the integration of both qualitative and quantitative data.

1.8.2 Study scope

This study examined the multi-agency team operations in Lamu County, focusing on the KDF activities in the Boni forest. The research was purposely looking at Boni forest operations made a safe haven by the Al-Shabaab militants for launching terror activities. The study's independent variable was science and technology, while the dependent variables were violent extremism.

1.8.3 Research target population

In statistics, the target population refers to the specific group or population for which information or data is desired. It can encompass individuals, services, elements, groups, or households that are the subject of investigation or analysis.⁹⁷ This means that the population of interest is homogeneous.⁹⁸ The population of this study was vital violence extremism stakeholders and practitioners involved in countering violent extremism in Kenya and Somali, such as Kenya Police, National Intelligence Service, civil societies, intelligence agents, terrorist victims, and Anti-Terrorism Police Unite, United States Agency for International Development, United Nations agencies, Kenya Defence Forces and other security experts. The target sample frame was based on the available (participants) population at the time of the study and strived to make them a true representative of the target group.

1.8.4 Research Sampling and sampling techniques

The research study utilized purposive sampling technique to ensure maximum variation within the sample size. The purpose of this sampling technique was to select participants based on their work and experience within the Kenya Defence Forces operating in Boni forest, specifically to examine the role of science and technology in countering violent extremism in Lamu County. Purposive sampling involves selecting individuals who possess specific characteristics or qualities that are relevant to the research study. In this case, participants were chosen based on their expertise, background, functional areas, departments, age, and units within the Kenya

⁹⁷ Creswell, John W and J. David Creswell, *Research Design: Qualitative and Mixed Methods Approaches*. Sage Publication, 2017.

⁹⁸ Creswell, W . J. (2007) *Qualitative Inquiry and Research Design: Choosing among five Approaches*, London. Sage Publication.

Defence Forces. By including a diverse range of participants, the researchers aimed to gather comprehensive and varied perspectives on the role of science and technology in countering violent extremism.

The researcher employed both qualitative and quantitative research techniques to collect data. To ensure the reliability and competence of the informants, the selection of the purposive sample was crucial. By categorizing the targeted respondents into their respective units, age groups, expertise levels, backgrounds, functional areas, and departments, the researcher was able to ensure representation from different segments of the population under study. In addition, random sampling was used to select participants based on the proportional size of the subgroups. This approach helped to minimize biases in the sample selection process and ensured that all units within the population were adequately represented in the research. By incorporating random sampling within the purposive sampling framework, the researcher aimed to enhance the quality of data gathered and mitigate any potential negative impact on the study's outcomes caused by sample biases.

1.8.5 Data collection method

The research study used a structured questionnaire to collect data. The questionnaire contained both closed-ended and open-ended questions to gather qualitative and quantitative data. The primary data was collected through key informant interviews, while secondary data was obtained from books, journals, and standing operating procedures. The research questionnaire was organized into four sections, each aligned with the major objectives of the study. The sections covered various topics including demographic information, the role of science and technology in countering violent extremism in Kenya, successes and challenges in countering violence extremism in the Boni forest region, and the key actors and frameworks involved in countering violent extremism in Kenya.

Using interviews and questionnaires as data collection methods can provide valuable insights into people's experiences, opinions, and perceptions. By incorporating closed and open-ended questions, researchers can obtain both quantitative data (e.g., numerical responses) and qualitative data (e.g., detailed explanations or narratives). This mixed-methods approach allows for a comprehensive understanding of the research topic.

1.8.6 Data analysis and presentation

The research study was conducted using questionnaires as the primary data collection method. The study questionnaires were completed by responsive respondents and then sorted and checked for errors, omissions, and biases to ensure data quality. The next step involved categorizing and classifying the data using tables, which helped in organizing and describing the primary data set in rich detail. Thematic analysis, a qualitative analytic method, was employed to identify, analyze, and report patterns or themes within the data. This approach aimed to capture important aspects related to the research question and identify patterns or meaningful responses within the data set.

To facilitate the analysis process, a coding system was utilized, which allowed for a quick and easy organization of the data. Codes were assigned to identify patterns in the responses, enabling the researcher to derive meaning from the analyzed data. The data was then entered into a computer for analysis using Statistical Package for Social Sciences (SPSS version 21), which is a commonly used data analysis tool. For the quantitative data, descriptive statistics such as means, standard deviations, and percentages were employed to analyze and summarize the data. These measures provide insights into the central tendency, variability, and distribution of the quantitative variables.

In addition to the thematic analysis and descriptive statistics, document analysis and context analysis were used as approaches for data analysis. These methods likely involved examining relevant documents or contextual information to gain a deeper understanding of the data and its implications. The final results of the analysis were presented in narrative form, as well as through visual aids such as pie charts, bar graphs, and frequency tables. These formats help convey the findings in a clear and easily interpretable manner. To determine the significance level of the variables on the dependent variable, analysis of variance was employed. This is a statistical test that compares the means of different groups to assess if there are significant differences between them. In this case, the significance level was tested at a 93% confidence level.⁹⁹

1.8.7 Piloting

The researcher undertook a pilot study with a tenth of the sample population in the neighboring Garissa County region with a sample that was considered homogeneous to the study's target

⁹⁹ Creswell, J. W & Creswell, J. D. (2018). *Research design* (5th ed.). SAGE Publications.

population. This was very important to test the validity of the data collection and measurement instrument to enable the effective and efficient roll out of the field study. This was conducted after obtaining authorization from the National Defence University-Kenya and the National Commission of Science, Technology, and Innovation (NACOSTI). The pilot study allows the researcher to improve the quality of the research instrument and correction of data collection errors.

1.8.8 Ethical consideration

The study strictly adhered to the appropriate research procedures stipulated by the NDU-K and NACOSTI research policy with guidance from the supervisor. It was a practice that before the questionnaire was administered; verbal consent was sought and given by the respondents. The respondents were informed of their right not to participate in the survey. The researcher upheld the highest integrity in the data collection as per guidance from the supervisor.

1.8.9 Study Chapter Outline

Chapter One:

This introductory chapter covers the research proposal with an introduction, background, problem statement, study objectives, research questions, hypothesis, literature review, justifications, research methodology, and ethical considerations.

Chapter Two:

This chapter analyses study objective 1. It examines Science and technology's role in countering violent extremism in Kenya.

Chapter Three:

Chapter three analyses study objective 2. This chapter investigates the successes and challenges the Kenya Defence Forces face in employing science and technology to counter violent extremism in Boni Forest of Lamu County.

Chapter Four:

Chapter Four analyses study objective 3. This chapter analyses the Key stakeholders and the strategies for mitigating using outdated science and technology in Boni Forest of Lamu County.

Chapter Five:

Chapter Five covers the presentation of data and analysis.

Chapter Six:

Chapter Six covers the study summary findings, conclusions, and recommendations.

CHAPTER TWO

THE ROLE OF SCIENCE AND TECHNOLOGY IN COUNTERING VIOLENT EXTREMISM IN KENYA

2.0 Introduction

This chapter presents data, analyses, findings, and discussions on science, technology, security, violent extremism, and key characteristics of individuals and groups practicing violent extremism. The chapter discusses the causes of violent extremism and compares science, technology, and counter-violent extremism. The research findings are presented in tables, figures, and graphs.

2.1 Science, Technology, and Security

The world's most industrialized countries have experienced various forms of insecurity that have had far-reaching effects on their economies. Science, technology, and security are interlinked and interdependent.¹⁰⁰ The development of science and technology has enabled advancements in security, and in turn, security concerns have influenced the direction and pace of technological development. Security measures often rely on scientific advances such as biometrics, cryptography, and surveillance technologies.¹⁰¹ Science and technology have also improved security for systems, power grids, and water supply networks. Scientific research also plays a crucial role in enhancing security against natural disasters and global pandemics.

States have acquired the most advanced defense technologies in hardware and software for their security agencies by leveraging their capacities to maintain national security. Additionally, technology has revolutionized the way security is maintained. With drone technology, all-powered surveillance systems and data analytics in security decision-making, science and technology have enabled predictive measures that help prevent security breaches and improve the response to security breakdown. However, with technological advancements come new security challenges such as cyber-attacks, data breaches, acts of terrorism, and privacy concerns. As technology evolves, it is essential to integrate scientific advancements into security practices to protect critical systems and sensitive information.

¹⁰⁰ Baylis, John. *Strategy in the Contemporary World*. Oxford: Oxford University Press, (2022), pp. 14-20.

¹⁰¹ Hasenohrl, Ute. *Histories of Technology and the Environment in Post-Colonial Africa: Reflections on the Field*. University of Innsbruck, Tyrol, Austria, (2021), pp. 6-9.

Technology in security refers to using advanced tools, systems, and techniques to mitigate and prevent security threats. This includes implementing measures such as data encryption, firewalls, intrusion detection and prevention strategies, biometric identification systems, and security cameras. These technologies can provide robust protection against attacks and unauthorized access to sensitive data and networks and enable timely detection and response to security incidents. Advances in technology have been critical in improving overall security and resilience in domains such as cyber security, physical security, and critical infrastructure protection. Many technologies may generate the same outcome but differ in efficiency.

Similarly, a given technology may generate multiple outputs. Technology may be quite specific or encompass several sub-processes, such as producing intermediate inputs within an overall system. Technologies may be production processes, intra-firm organizational structures, management techniques, and means of finance, marketing methods, or any combination.¹⁰² All contribute to the productivity of outputs generated from inputs and the entire system.

In the constantly evolving contemporary operating environment, militaries worldwide face increasingly complex and unpredictable threats. In this context, there is a growing need for a revolution in military affairs (RMA) to enhance military agility, speed, precision, and effectiveness in responding to these challenges. From the 1991 Gulf war to the events of 9/11, RMA has dominated the defence profession, characterized by technological change, organizational adaptation, operational innovation, and a significant leap in military effectiveness. This has been accelerated by a rapidly changing operating environment characterized by competing interests for survival.¹⁰³ The traditional model of warfare, which relied on massed formations, linear battles, and attritional tactics, is becoming increasingly obsolete. Modern conflicts are characterized by non-state actors, asymmetric warfare, and advanced technologies that blur the lines between conventional and unconventional warfare. To address these changes, militaries must adopt a more network-centric approach that leverages advanced technologies to enhance situational awareness, command and control, and decision-making. This has resulted in a few large defense investors dominating the global defense industry, mainly from the global north.

¹⁰² Burke, Jackson and Dukes, Frank. *Conflict: Readings to Management and Resolution*, London: Macmillan Press Ltd, (1990), p. 16.

¹⁰³ Global Defense Perspectives. Mapping Prioritization and Posture in a Challenging World PwC, (2015), p. 89.

Technology, surveillance, and intelligence work to intersect between emerging technologies and national security. The African Union Agenda 2063, aspirations for “the Africa we want,” envisages a peaceful and secure Africa where all inter and intra-state conflicts will end and all guns on the continent will be silent by 2063. It anticipates that RMA in African states will generate a strong defence industry as a key part of the overall defence capability and national defence strategy. Some key technologies that can drive RMA include; artificial intelligence, machine learning, autonomous systems, big data analytics, and advanced sensors. These technologies can help militaries process vast amounts of data in real-time, identify patterns and anomalies, predict future events, and enable rapid and precise responses. They can also help reduce the risks to military personnel by allowing unmanned or remotely operated systems to perform dangerous or sensitive tasks.

Insecurity in Africa is a complex problem with various causes, such as colonial legacies. European’s arbitrary borders disrupted social and economic structures, weakening traditional governance systems and creating persistent instability and vulnerability in societies. Political instability and weak governance structures have led to insecurity in many African countries. Widespread poverty and economic inequalities led to criminal activities; Terrorism and extremism present a significant security threat in Africa. Others are ethnic and religious tensions, and limited access to effective education makes it difficult for Africans to escape poverty or gain critical thinking skills hence lacking the psychological resources necessary for effective nation-building. Displaced populations and increased refugee populations add to the complexity of insecurity in Africa.¹⁰⁴ Sub-Saharan Africa is a vast land rich in natural resources with great potential for investment and opportunity. However, the two modern trends of democracy and economic prosperity elude the African region mainly due to persistent conflict and cultural and socio-political dynamics.¹⁰⁵ The causes are rooted in the peculiar effects of colonialism and the cold war on Sub-Saharan Africa.¹⁰⁶ State fragility in Africa has been identified as the most significant source of intra-state conflicts. Poor governance provides fertile grounds for drivers of violent extremism amongst the citizenry.

¹⁰⁴ Burke, Jackson and Dukes, Frank. *Conflict: Readings to Management and Resolution*, London: Macmillan Press Ltd, (1990), p. 16.

¹⁰⁵ Collier, Paul and Hoeffler, Hans. *Ethnic loyalties, state formation and conflict. A background paper prepared for the Africa in the 21st Century Project*. Washington, D.C., World Bank, (1999), p. 91.

¹⁰⁶ Collier, Paul and Hoeffler, Hans. *Ethnic loyalties, state formation and conflict. A background paper prepared for the Africa in the 21st Century Project*. Washington, D.C., World Bank, (1999), p. 91.

The end of the cold war era and the subsequent liberalization of world economies spelled a new world order. The impact of increased globalization and internationalization concepts generated states' security dilemmas in the security spectrum. Origins of insecurity are manifold and complex, rooted in international and national arenas, creating a sense of political and economic insecurity in Africa.¹⁰⁷ Transnational criminal groups link with local communities, radicalize, recruit potential fighters, and offer training to advance their course. Such groups leverage technological advancement, such as the robust information technology space, to prosecute their agenda.

Clarke reveals that accelerating change across diverse forms of technology fundamentally alters the security landscape. Rapid and profound advances in hardware and software, paired with the global shift to digitally networked communications and transactions, have transformed the economic and war/security landscape and the fabric and rhythm of daily life. They have also introduced new risks to personal safety and national security, fueled a strategic competition between superpowers, and increased collective vulnerability to malicious states and non-state actors armed with cheaper, more effective, difficult-to-attribute tools. Unlike conventional warfare, asymmetrical warfare has no precision target.¹⁰⁸ Cyber warfare has shown the capacity of the adversary to threaten and exploit critical infrastructure networks, paralyze its operational capacity, blind its intelligence capabilities, or hinder its ability to deliver weapons on target. These emerging challenges and unique needs push for cutting-edge frontline and critical policy decisions across the nexus of technology and security.

Shanker argues that cyberspace is a new human activity dimension requiring new ethical guidelines and norms. He has highlighted cyberspace's potential risks and benefits and emphasizes the importance of responsible behavior and regulation to ensure its positive potential is realized. In addition, Shanker has argued that it is not just a tool or technology but an environment that reflects and shapes our social, political and economic structures. We need to understand and manage its impacts. For instance, the internet is designed to be collaborative and rapidly expandable with low barriers to technological innovation, where security and identity management are lower priorities.¹⁰⁹ It must also recognize that traditional Cold War deterrence models of assured retaliation or threats of punishment do not apply to cyberspace.

¹⁰⁷ Stedman, Schraeder. *Conflict and Conciliation in Sub-Saharan Africa, The International Dimensions of Internal Conflict*. Cambridge, MA: MIT Press, (2006), pp. 235–65.

¹⁰⁸ Clarke, Knake. *Cyber War: The Next Threat to National Security and What to Do about It*, (2010), p. 140.

¹⁰⁹ Shanker, Thom. *Cyberware Chief Calls for Secure Computer Network*, *the New York Times*, (2010), p. 12.

Cyberspace presents unique challenges where the anonymity and asymmetry of cyber-attacks make it difficult to trace the source of the attack and the necessary response. As such, cyber-attacks can often be carried out with minimal resources and are difficult to detect and defend against. This will require new approaches to address the unique threats of cyber warfare, such as increasing cyber defence systems and creating international norms and collaborations to regulate cyber activities where it is difficult and time-consuming to identify attacks.¹¹⁰ The forensic work necessary to identify an attacker may take months if identification is possible at all. And even when the attacker is identified, if it is a non-state actor, such as a terrorist group, there may be no recourse as it may lack assets against which the government can retaliate.¹¹¹ Furthermore, what constitutes an attack is not always clear. Many of today's intrusions are closer to espionage than acts of war.

Economic globalization and explosive growth of Information-Communication-Technology have dominated the political and corporate agenda defining a new paradigm where competition and cooperation must coexist amongst most pragmatic societies and nations. This will call for skillful diplomatic maneuvering of different priorities in the future that will have to be based on a sound understanding of the role of Science and Technology in international affairs.¹¹² In many cases, the results of technology transfers differ significantly from the initial transfer goals or hopes. Indeed, Cheldelin and Eliatamby identified two of the significant barriers to transfers at federal laboratories: the expectations of one party are not always shared by the other, and there often exists a lack of awareness of the value of the existing technology being transferred.¹¹³ In this respect, most experts agree on the effectiveness of close collaboration between industry and national laboratories. Because adaptation is usually difficult, collaborative partnerships require a strong commitment from both parties, which must be ready to invest substantial effort and money in a medium or long-term initiative.

In her writing, Anna-Karina Karatzogianni explored how technology can shape international relations, particularly the critical role of cyber-attack, internet censorship, and online propaganda in shaping geopolitical dynamics. Karatzogianni argues that these technological developments have significant implications for diplomacy and foreign policy. For instance, she suggested

¹¹⁰ Defence Review, *Chapter 15*, (2015), pp. 111-116.

¹¹¹ Shanker, Thom. *Cyberware Chief Calls for Secure Computer Network*, *the New York Times*, (2010), p. 12.

¹¹² Cheldelin, Sandra and Eliatamby, Maneshka. *Women waging war and peace: international perspectives on women's roles in conflict and post-conflict reconstruction*. London and New York: Continuum, (2011), p. 305.

¹¹³ Jennifer, De M. *Managing Civil Wars, An Evaluation of Conflict-prevention Strategies in Africa*, (2006), pp. 131-144.

nations must deal with cyber threats and misinformation to protect their interests. Karatzogianni's work highlights the interconnections between Science and Technology with foreign policy and diplomacy. Many of the defining challenges of the 21st century, from basic human security to global climate change concerns, from security of outer space to cyberspace, all have scientific and technological dimensions.¹¹⁴ These are global issues, and no one country can solve these problems independently. The tools, techniques, and tactics of nations' foreign policy must adapt to this changing world of scientific and technical complexity.¹¹⁵

This study notes that direct and indirect socio-economic and political factors cause insecurity in Kenya. The main drivers of insecurity revolve around perceptions and realities of marginalization, the political instability that results in violence and election-related disputes, entrenched ethnicity that creates a sense of insecurity against minority or marginalized groups, economic inequality with large populations of people living in poverty with limited access to basic human needs that make sense of hopelessness and desperation thereby turning into crime, the corruption that creates an environment where criminal activities thrive, cybercrime with cases of hackers exploiting vulnerabilities in information systems, to steal data, money, and intellectual properties, acts of terror and violent extremism with attacks targeted at public places and security forces resulting in mass injuries and at times loss of lives among many others. Insecurity in Kenya continues to manifest itself despite the constitutional reforms that succeeded the country's 2007/08 post-election violence. Kenya experiences overlapping conflicts, sometimes coinciding with electoral cycles that trigger politically motivated violence.

This study concludes that accelerating technology development¹¹⁶ is significant because it can produce a variety of multifunctional applications and improve the speed and accuracy of existing functions (for example, lab-on-a-chip bioassays, Functional Magnetic Resonance Imaging (fMRI) for medical diagnostics) through the use of wearable computers). The increasing availability of information and the growth of communication networks have been significant factors in the globalization of the 21st century.

In conclusion, the study notes that the Kenya Defence Forces (KDF) has leverage on science and technology in several aspects of its operational activities. Notably, surveillance of the

¹¹⁴ Karatzogianni, Athina. *Violence and war in culture and the media: five disciplinary lenses*. London and New York: Routledge, (2012), pp. 280-281.

¹¹⁵ Howieson, Susannah. *Institute for Defense Analyses 4850 Mark Center Drive, Alexandria, Virginia*, (2013), p. 2001.

¹¹⁶ Hagelin, Björn. *Science- and Technology-Based Military Innovation in South Africa*, SIPRI Yearbook, Oxford, OUP: (2004), pp. 285-304.

international boundary using Unmanned Aerial Vehicles (UAV), a force multiplier, makes surveillance much easier and cost-effective. Through the Kenya Ordnance factories, KDF applies science and technology in producing several products such as bullet production, production of foodstuffs (such as milling of maize flour, water bottling, baking services, and vegetable drying). Lab-on-a-chip bioassays have revolutionized diagnostics, especially on improvised explosive devices, to discern the adversary's tactics, techniques, and procedures. In the contemporary operating environment, KDF should focus on miniaturized lab-on-a-chip bioassays that offer reduced sample size, faster results, increased automation, and cost-effectiveness. Further, the KDF should utilize wearable computers for convenience, improved communications, and hands-free operations.

2.2 Violent Extremism

Today the international community knows much more about preventing violent extremism than ten years ago. But still, the practices of countering violent extremism lack clarity in their definition and scope. Moreover, many policymakers and practitioners use the terms “counterterrorism” and “counter-violent extremism” interchangeably when they represent very different approaches. The emphasis on prevention, human rights, civil society, and enhancing community resilience has been the hallmark of counter-violent extremism policies and objectives, whose nature and scope are more akin to development, conflict prevention, and mitigation efforts. Where violent extremist ideologies and groups threaten social cohesion and socioeconomic stability and provoke armed violence, countering violent extremism can align well with a host of conflict prevention and peace-building efforts. The approaches required need to focus on leveraging the toolkit of “soft power.”¹¹⁷

Violent extremism refers to “advocating, engaging in, preparing, or otherwise supporting ideologically motivated or justified violence to further social, economic or political objectives,” or the “willingness to use unlawful violence by others, to promote a political, ideological or religious goal.” The emphasis is on mobilization toward ideologically motivated violence. As this infers, violent extremism should be interpreted as broader than terrorism alone, which it subsumes along with other forms of ideologically motivated violence. What differentiates violent extremism from other forms of violence is the motivation. Violent extremism aims to promote a

¹¹⁷ Andrew Strathern, Pamela J. Stewart & Neil L. Whitehead (Editors), (2005). *Terror and Violence: Imagination and the Unimaginable* (Anthropology, Culture and Society) Paperback. Pluto Press.

particular ideology or belief through violence. In this way, using “violent extremism” may permit practitioners and analysts to address the issues at hand with less politicization than has often accompanied “terrorism” and to look for commonalities across different forms of contemporary non-state violence.

Violent extremism and radicalization are defined as the problem, and countering violent extremism, sometimes called “counter-radicalization,” is offered as the solution. Using the term ‘Violent Extremism’ is an attempt to move away from the stigma, misrepresentation, and confusion associated with the use of the ‘Terrorism’ label and to address all types of violence, large or small, used in an attempt to achieve a racial, ideological or religious goal. Humera Khan defines counter-violent extremism as the “use of non-coercive means to dissuade individuals or groups from mobilizing towards violence and to mitigate recruitment, support, facilitation or engagement in ideologically motivated terrorism by non-state actors in furtherance of political objectives.”¹¹⁸ McCants and Clint Watts simplify this further to define countering violent extremism as measures to “reduce the number of terrorist group supporters through non-coercive means.

Peter Neumann observed that countering violent extremism captures the “potentially unlimited” range of activities that governments and others may pursue to prevent radicalization, which generally includes messaging, such as speeches, television programs, leaflets, and social media; engagement and outreach, such as town halls, roundtables, and advisory councils; capacity building, such as youth and women’s leadership initiatives, community development, and community safety and protection programs; and education and training, such as of community leaders, public employees, and law enforcement. Reflecting that the goals of counter-violent extremism cut across a broad swath of government activities, Neumann suggests that countering violent extremism should be considered a “policy theme” rather than a substantive policy domain.

The lack of a clear definition of countering violent extremism has led to “conflicting or counterproductive programs” that are more difficult to evaluate. A distinction is sometimes made between measures that are countering violent extremism specific and those that are countering violent extremism relevant. The countering violent extremism-specific measures cover those designed to prevent or suppress violent extremism in a direct, targeted fashion. These measures

¹¹⁸ Michael S. Kimmel, (2018). *Healing from Hate: How Young Men Get Into—and Out of—Violent Extremism*. University of California Press.

are more likely to address behavioral and cognitive radicalization. By contrast, countering violent extremism-relevant measures are framed more generally, intending to reduce vulnerability to extremism indirectly. These measures primarily address cognitive radicalization and are more likely to be advanced through education, development, and women's rights and youth initiatives. "Countering violent extremism relevant" is sometimes used as a catch-all phrase to cover a broad range of initiatives that are thought to impact violent extremism in some way. Relevant measures often aim to build "resilience," which is individuals' and communities' psychological, social, cultural, and physical capacity to sustain their well-being and, in particular, resist and respond to extremist influences.

2.2.1 Key Characteristics of Individuals and Groups Practicing Violent Extremism

Extremists, whether acting as individuals or as groups and practicing violence in communicating their grievances, usually choose a deliberate target to inflict harm to others based on their identities. They choose violence for their course, culture, scientific or rational thought, human rights, due process, and for the traditional and modern embodiments of law and authority. They lack tolerance for multiple narratives that challenge their fundamentalist belief system. In some cases, they are motivated by rejecting the nation, state, or at least the existing boundaries. In other cases, a glorification of the nation-state linked to rhetoric of supremacy of one people/class over others. The systematic discrimination and abuse of women and their subordination through rape, enslavement, abduction, denial of education, forced marriage, and sexual trafficking are common.

2.2.2 Causes of violent Extremism

The root causes are complex, multifaceted, and intertwined. Violent extremism is the product of historical, political, economic, and social circumstances, including the impact of regional and global power politics. Varied factors referred to as "Push Factors" are factors that drive individuals to violent extremism; these may include: marginalization, inequality, discrimination, persecution, or the perception thereof; limited access to quality and relevant education; the denial of rights and civil liberties; environmental, historical and socio-economic grievances. Other factors that nurture the appeal of violent extremism are called "Pull factors." These may include well-organized violent extremist groups with compelling discourses and effective programs that provide services, revenue, and employment in exchange for membership. Groups can also lure new members by offering outlets for grievances and promises of adventure and freedom.

Furthermore, these groups provide spiritual comfort, "a place to belong," and a supportive social network.

Drivers of radicalization (push factors) cannot singularly explain its cause. These include unemployment, poverty, exclusion, perceptions of injustice, human rights violations, social-political exclusion, widespread corruption, or sustained mistreatment of certain groups. Break-down of social cohesion, lack of government institutions, amplified sense of marginalization, loss of job security, gender-based violence, more hate speech, and increased information pollution are other push factors that act as gateways to radicalization. When these factors compound and impact particular groups of people, radical movements and violence are more likely to erupt.

2.3 Science, Technology, and Counter-Violent Extremism

Science and technology have played an increasingly critical role in developing strategies to counter violent extremism. In particular, advancements in social media monitoring and analysis, data mining and machine learning have enabled researchers and policymakers to better understand the dynamic of extremism and develop targeted interventions. Military research and development plays a crucial role in innovation and technological development. Competition among states and private sector innovation is driving the rapid growth of military technology. Military adaptation of technology depends on the research and development effort for innovative military technology activities and the government's technological policy of a target state.¹¹⁹

Technological advances can have positive consequences for the protection of civilians in armed conflict: weapons can be used with more precision, military decisions can be better informed, and military aims can be achieved without the use of kinetic force or physical destruction. For Instance, Social media monitoring and analysis can be used to track the spread of extremist messages and identify vulnerable populations that may be susceptible to radicalization. Data mining can help identify patterns in extremist behaviors, such as common recruitment tactics and social media platforms used for propaganda. At the same time, new means of warfare and how they are employed, particularly the tactics, techniques, and procedures (TTPs), will help identify the new improvisations by the adversary and support the military design counter measure plans. Based on online behaviours and social network analysis, machine learning algorithms can identify and flag extremist content online or predict which individuals may be at risk of

¹¹⁹ Michael Burgan, (2016). Weapons Technology: Science, Technology, and Engineering. Scholastic Incorporated

radicalization. By shaping the tactics and strategy best suited to the exercise of military force, technology has led to faster airplanes, laser-guided weapons, and unmanned, bomb-carrying vehicles.¹²⁰ These developments promise greater firepower, mobility, and protection and introduce more control and flexibility into combat operations. Systems integration leads to improved means of command and control for a commander. Besides, Systems integration engenders force multiplication and gives a high level of precision to the overall force of the individual and massed fires. Moreover, technological advancement leads to force multiplication, the concentration of effects, and transparency resulting from human intelligence systems, improving the ability to obtain a real-time picture of the battlefield.

There are also various technology-driven intervention approaches to countering violent extremism, including online campaigns that promote peaceful and positive alternatives, virtual reality simulations that expose individuals to the realities of extremism, and online mentoring programs for at-risk individuals. However, adopting these technologies is a balance between privacy and civil liberties. Legislators must balance using these tools to counter violent extremism while effectively respecting individual rights and freedoms.

2.4 National Government Response to Lamu County Extremism

The national government's decision to deploy the multi-agency team to restore order and security in Lamu County was justified. Lamu is a unique County with a rich history and underlying outstanding issues that define its nature and manifestation of violent extremism. Significant to note, therefore, is that for the success and sustainability of measures to counter violent extremism, all the stakeholders must appreciate what is at stake, understand their role, and actively participate in activities to mitigate violent extremism. Overemphasis on law enforcement and military involvement without involving communities and other stakeholders has been seen as non-sustainable in tackling violent extremism in other countries. Therefore, The promising approach is to employ Problem Oriented Policing (POP) strategies.

'Operation Linda Boni' means preserving and saving the Boni forest in 2015.¹²¹ In each of these military operations there arose allegations of human rights abuse like rape, assassinations and use of excessive force. This was attributed to the failure by the military to incorporate residents and other non-military actors in the operations. One respondent notes that the KDF is justified in

¹²⁰ Noble, D. (1985) Command performance: a perspective on military enterprise and technological change. In M.R. Smith (1985).

¹²¹ Research Field Data. Respondent Number 5, (2022).

intervening to find peace in the conflict areas under the Kenyan constitution and UN Charter provision.

2.6 Chapter Summary

It is prudent to appreciate that adopting science and technology in addressing human security issues in Kenya has been a great challenge. For instance, Kenya faces security challenges ranging from runaway theft and destruction of property, robbery, terrorism, burglary, murder, cybercrimes, land and resource conflicts, terrorism, political violence, insurgency by armed militias, refugee influx, internal and inter-ethnic armed conflict, cattle rustling, corruption, drug, and human trafficking among others. The country continues to face challenges in addressing violent extremism threats that appear to increase.

The steady growth of civilian industries has also led to competition with defence firms in developing new technologies, except in a few specific defence-related applications. The local demand for defence products usually depends on the country's perception of the threat from its enemies in the short and long term. In contrast, the country's economic conditions serve as a constraint on this demand. Therefore, the effect of science and technology on a country's economy primarily depends on key factors, such as the country's defense needs, the overall economic situation, and the size of the defence industry relative to the civilian industry and the stage of technological development.

The appreciation and support of the diverse defence ST&I roles and strategic utility by defence organizations depend on their understanding of the 'added value' created by scientific research, their knowledge-oriented culture, and their ability to look beyond short-term operational pressures. KDF has also significantly contributed to worldwide training and capacity building towards peace and security. The relevance, usability, and quality of delivered defence R&D solutions serve as the best arguments for appreciating the role and contribution of R&D. Therefore, the military needs to develop mechanisms to integrate R&D into their development concept.

CHAPTER THREE

SUCSESSES AND CHALLENGES IN THE USE OF SCIENCE AND TECHNOLOGY IN COUNTERING VIOLENT EXTREMISM

3.0 Introduction

Chapter Two delved into science and technology and violent extremism. This chapter reviews the successes and challenges in using science and technology to counter violent extremism in Boni forest, Lamu County. The chapter identifies the strategic issues contributing to Violent Extremism and explores the efforts made by various stakeholders in the execution of the county Action plan. Additionally, the chapter looks at the support offered by the multi-Agency team deployed to support the county efforts, particularly to address the challenges posed by the armed militia operating in the expansive Boni forest. It dwells on the successes achieved and challenges faced by the multi-Agency team.

3.1 Strategic issues contributing to Violent Extremism in Lamu County

Lamu County leadership and the County counter violent extremism stakeholders acknowledge the problem of radicalization and violent extremism in the county, mainly due to many returnees from Somalia hiding in many different places, including Boni forest. Apart from those returning from Somalia, others originated from neighboring counties of Mombasa, Kwale, Kilifi, and others as far as the neighboring countries of Tanzania, Uganda, and Rwanda. The county leadership identified stakeholders to craft local interventions aligned with the National CVE Strategy. The interventions provided an all-inclusive approach to radicalization and violent extremism in the county. This culminated in a series of Focus Group Discussions (FGDs), workshops, key informant interviews, and baseline surveys aligned with the United Nation's goals on countering violent extremism. Working with other stakeholders, the county government leadership developed a county CVE plan of action that identified the following strategic issues; ideology, awareness of CVE issues amongst stakeholders, sense of victimhood among the indigenous people, land and historical injustices, political and structural challenges, social and educational and economic hardships. Other strategic issues identified included the abuse of technology such as Facebook, tweeter, and WhatsApp platforms and historical linkages to gulf countries such as Yemen in the Middle East.

The stakeholders further identified fear as a hindrance to cooperation between security personnel and the general public. Notably, it emerged that the police-community relation was rather sour and weak. Further, the scramble for land continued amidst mega government projects. Lamu County was vulnerable to access by radicals from Somalia as a transit point for those wishing to travel to Somalia. Accordingly, the County leadership and the CVE stakeholders addressed these issues; however, they sought national government assistance to deal with the Armed Al-Shabaab militia, who were overwhelming county intervention strategies.

Consequently, the government responded by deploying the multi-agency team composed of the National Police Service (NPS), the Kenya Defence Forces (KDF), the National Intelligence Service (NIS), the National Prison Service (NPS), Kenya Coast Guards Service (KCGS), National Youth Service (NYS), the Attorney Generals (AG's) representatives, the Kenya Forest Service (KFS) the Kenya Wildlife Service (KWS) the National Disaster Operations Center (NDOC) representatives and non-state actors from the Non-Governmental Organizations (NGOs), ambulance Services, the Red Cross personnel and private voluntary organizations (PVOs). The Multi-agency team was headed and coordinated by an appointed Regional Commissioner. This team has made successes and faced challenges as well.

3.2 Strategies adopted by Lamu County in Prevention of VE Programs

This section sought to examine the strategies employed by Lamu County to assess its success and the challenges it may have faced. The strategy involved various county-level stakeholder programs and the national government's involvement strategies regarding objectives, intervention measures, and support initiatives pursued. The findings reveal that Lamu County Integrated Development Plan (CIDP) acknowledges that insecurity has significantly threatened her development. Consequently, the county developed strategies to address the problem of violent extremism structured in two approaches or a combination. These strategies specifically deal with incentives to counter the joining of the VE groups and also strategies dealing with factors likely to provide fertile breeding grounds for VE recruitment. The first step of dealing with structural factors focused on societal push factors like unemployment, high poverty rates, idleness, and low educational levels that would present individuals with reasons to join VE groups in search of a better life. County government officials and members of an international non-government organization working in the county who participated in the survey agree that involvement of the locals in sustainable programs where one can make a living and improve their

wellbeing will avoid idleness and dissuade them from joining violent extremism groups that offer financial rewards as an enticement for recruitment.

Prof. Mwakimako finalized his presentation by indicating that these strategic issues are important in understanding the social, cultural, economic, and ethnic profile of Lamu County to inform an effective CVE Strategy. In reviewing the adopted *Lamu County Action Plan for Countering Violent Extremism*, he applauded the efforts done by the drafters of the plan for their holistic review and analysis of these strategic issues and incorporation of the issues into the strategy.

3.3 National Government Interventions in Lamu County

Activities at Lamu County in September 2011 are where Kenya's conflict with Al-Shabaab started. Lamu was at the center of a series of events that triggered Kenya's full-scale military incursion into Somalia. It all began when suspected Al-Shabaab militia kidnapped a British couple from a hotel near Lamu Island on a sailing holiday. Three weeks later, a French woman was taken by the same militia group from a different hotel. Although Kenya's intervention in Somalia was planned well in advance, these and other kidnappings along Kenya's border with Somalia proved to be the trigger for the launch of Operation "Linda Nchi" meaning "protect the country" by Kenya's Defence Forces (KDF) in October 2011.

While the Kenyan Government had previously supported militias fighting in Somalia against Al-Shabaab militia, Operation Linda Nchi was a full-scale military intervention aimed at creating a buffer zone along Kenya's border, dislodging Al-Shabaab from its control of the economically important Somali port city of Kismayo, and, ultimately, at eradicating the group. Lamu had experienced the blowback from this intervention, witnessing the complex entanglement of multiple conflict drivers that almost overwhelmed the County government interventions, thereby seeking security support from the state.

3.3.1 Operations Usalama Watch

Before the deployment of the Multi-Agency operation to Lamu County, the Kenya Government was already battling with youth radicalization challenges within Nairobi city and other major coastal towns as well as towns along the Kenya/Somali border where Al-Shabaab had formed a Kenyan franchise named Al-Hijra hitherto known as "Muslim Youth Centre." Besides youth radicalization, this group had turned its attention to attacks within the country and created

propaganda in the Swahili language targeted at Kenyan Muslims, including non-Somalis that played on several historical long-standing grievances and disaffection and dissent”¹²² and delivered through recordings, DVD videos titled “*Mujahideen Moments*” and well-produced magazines, “*Gaidi Mtaani*.” The government of Kenya deployed special police units under “Operation Usalama Watch.”¹²³ The activities of Al-Hijra were complemented by another Al-Shabaab-affiliated faction operating from the Boni forest in Lamu County, known as Jaysh Ayman. It was apparent Kenya’s problem with Al-Shabaab was not only an external issue but also a “homegrown” one.¹²⁴ Locally recruited Kenyans were positioned to play a more prominent role in the next chapter of the country’s domestic war on terror.¹²⁵

3.3.2 Multi-Agency Operations in Boni Forest

Among the Kenyan Coastal region, Lamu County has been more affected by radicalization and violent extremism than the other Counties. This is primarily so due to the existence of the vast Boni forest that transcends across the Kenya/Somali border.¹²⁶ June 15, 2015, the Mpeketoni killings and subsequent series of attacks for which Al-Shabaab claimed responsibility triggered the Government of Kenya to deploy a Multi-Agency team to flush the militia out from the forest and restore peace and security. Due to dense vegetation, the Boni forest presented a significant challenge to the Multi-agency team. The forest canopy of tall trees characterized by dense mangrove undergrowth with reduced visibility and lack of defined routes was a real challenge to the multi-agency operation. The deployment received mixed reactions from various stakeholders, with part of the local population in support. In contrast, others saw it as an unnecessary displacement of the people.

3.3.3 From Operation Linda Boni to Operation Amani Boni

“In response to Al-Shabaab’s occupation of the Boni forest,” the Government of Kenya (GOK) launched a multi-agency operation codenamed “Operation Linda Boni” in September 2015. This operation was the national Government’s support to the Lamu County Government’s efforts in dealing with violent extremism.¹²⁷ Initially, the multi-agency operation was not appreciated by

¹²² <http://www.tandfonline.com/doi/pdf/10.1080/17531055.2015.1082254>, p 546

¹²³ <http://www.ids.ac.uk/publication/tangled-ties-al-shabaab-and-political-volatility-in-kenya>, p 18

¹²⁴ <http://www.tandfonline.com/doi/pdf/10.1080/17531055.2015.1082254>, p 545

¹²⁵ <http://www.ids.ac.uk/publication/tangled-ties-al-shabaab-and-political-volatility-in-kenya>

¹²⁶ Research Field Data. Respondent Number 7, (2022).

¹²⁷ El-Said, Hammed. *New Approaches to Countering Terrorism: Designing and Evaluating Counter Radicalization and De-Radicalization Programs*, Palgrave Macmillan, (2015), p. 2.

the local population. “The KDF had bombed strategic areas in the forest to flush out the militants, but the efforts were fruitless. At the time, the soils were soggy, and the forest was only accessible by foot, denying the troops the advantage of armored support.” Residents were getting frustrated, having vacated their homes near the forest to allow for the operation; however, the militants continued to control the forest. Insecurity had hampered the county’s economic activities of farming, fishing, and particularly tourism. Lamu is a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage site. Frequent curfews and “roadblocks made mobility and nightlife around Lamu County a nightmare. Operation Linda Boni underwent a series of revisions.” First, after a year, the Al-Shabaab had emboldened and staged an attack on a KDF camp at Baure. Sixteen militants were killed, and the attackers were repulsed. The operational mandate was revised to “Boni Enclave Campaign” after that; it was renamed “Operation Fagia Msitu” and finally renamed “Operation Amani Boni” with the “Command designated to KDF as the lead agency.¹²⁸ OAB has continued strengthening security within Lamu and the neighboring Tana River and Lower areas of Garissa Counties. This has significantly enhanced the resident's livelihoods and suppressed Al-Shabaab operations.

Through the County Integrated Development Plan (CIDP), Lamu County appreciates that insecurity is a significant threat to development. Note that for successful and sustainable measures to counter violent extremism, all the stakeholders must appreciate what is at stake, understand their role and actively participate in mitigation activities. The use of law enforcement and military involvement must be in support of communities and other stakeholders. Lamu is a unique county with a rich history and underlying unique issues that define violent extremism's nature and manifestation. The most promising approach is to employ problem-oriented policing strategies. Accordingly, the Lamu County CVE plan will go a long way in integrating and harnessing local stakeholders and local initiatives to arrest radicalization and VE. The multi-agency operation in Lamu County was necessary to deal with the armed Al-Shabaab militants operating in the expansive Boni Forest. This provided the Lamu County CVE Stakeholders caucus with the required support as other initiatives continue.

3.4 Operation Amani Boni Challenges

Initially, the presence of the KDF in and around the forest had not secured Lamu County. The militia group could kill people and cause untold suffering. “In 2016, the militants beheaded nine

¹²⁸ Koehler, Daniel. Violence and terrorism from the far right: policy options to counter an elusive threat. ICCT policy brief, (2019), p. 16.

locals in the region; and abducted a former Public Works P.S. (Mariam El Maawy), who later succumbed to injuries and killed six more in the Nyongoro area, including passengers and fishermen.” At the same time, several people were displaced and dissipated their businesses and farms due to the government bombing of the forest. “The government faced opposition from conservationists and activists who opposed KDF’s strategies of flushing out Al-Shabaab militants.” Other challenges brought to the fore include; (a) The Kenya/Somali porous border, (b) “high level of corruption that makes it easy for the Al-Shabaab to pass through the borders and even settle in the Boni forest, (c) There are two kinds of Al-Shabaab terrorists; the Kenyan Al-Shabaab and Somali Al-Shabaab. When some terrorists went to Somalia, they were accused of being government informants. Some of them ran back to Kenya and stayed in the forest, fearing they could not be accepted back. (d) the sibling rivalry between government agencies made it difficult to have a uniform and concrete strategy to combat Al-Shabaab fighters in the forest. (e) Lack of proper training by NPS vis-a-vis the threats posed by terrorists.” (f) Failure to act on time on NIS intelligence in 2012.¹²⁹ (g) Lack of appropriate fighting equipment and mistrust by the local community.

3.5 Operation Amani Boni Successes

“Operation Aman Boni” has registered tremendous success. These include “torching of Al-Shabaab hideouts, flushing the Mujahedeen out of the Boni enclave, recovering weapons, and arresting a significant number of recruits both of Kenyan descent and other nationalities.” KDF has overseen water, security, health, and education projects and led counter-violent extremism activities in the county. Boni Forest is gazetted “as a national reserve to boost tourism and economic activities in Lamu County. The threat of Al-Shabaab emanating from the Boni enclave has been reduced near eradication, eliminating it as a training ground for the terrorists.” Likewise, the multi-agency team has engaged in humanitarian civic activities in the area through quick-impact development projects such as opening up access roads, establishing governance structures, building provincial administration camps, building schools and health facilities, providing engagement forums with the locals to improve on information sharing, government amnesty, rehabilitation and re-integration of returnees and the socio-economic empowerment of victims of VE and other vulnerable groups.

¹²⁹ Ibid. p. 13.

3.5.1 Successes achieved by the Multi-Agency Team

The Multi-Agency team faced myriad challenges; however, through intelligence-led operations, the team degraded the Al-Shabaab to a great extent, including the dismantling of many training camps, recovering assortment of the militant's military gear and various IED-making components, Recovery of arms and ammunition, foiling of many attempted attacks, arrests, and prosecution of many suspected members of the Al-Shabaab and their accomplices and domination of the Boni enclave and its surroundings through robust patrolling. Further, the team coordinated with county security and intelligence committees (CSICs) within Lamu County and the neighboring Tana River, Hulugho, and Ijara Sub Counties, facilitated conflict resolution meetings between herders and farmers, simplified return of internally displaced persons, conducted successful vehicle escorts thereby promoting increased personnel movement,

3.6 Challenges faced by the Multi-Agency Team

At the onset, the multi-agency team faced several challenges. This was attributed to the new approach; however, operational reviews, lessons learned, and operational adjustments have marked improvements, with positive results realized throughout the operational environment. Even with the said improvements, some of the enduring challenges throughout the period include the following; poor global system for mobile (GSM) communication to support timely intelligence sharing, lack of structured logistical support plans, Lack of updated operational maps, expansive ungoverned spaces, lack of joint standing operating procedures, harsh weather and terrain hampering intelligence, surveillance, and reconnaissance (ISR) operations and deliberate interference of security operations by non-state actors and civil society organizations (CSO) operating in the region such as the Haki Africa and MUHURI (Muslim for Human Rights)

3.6.1 Asymmetrical Operations

According to Waldman, Asymmetrical war can be defined as a war waged between two adversaries with greatly differing capabilities, strategies, and tactics.¹³⁰ Such conflict occurs between conventional forces and insurgents. The insurgents are usually embedded within civilian populations hence bringing the problem of collateral damage.¹³¹ Corruption within the existing

¹³⁰ Waldman, Peter. *Revenge without rules: on the renaissance of an archaic motif of violence, studies in conflict and terrorism*, (2019), pp. 435-450.

¹³¹ Ibid, (2019), pp. 461-466.

system makes asymmetric operations formidable.¹³² This problem is compounded by the existence of expansive ungoverned spaces that serve as safe havens for insurgent activities.¹³³ Kohler believes that returnees cannot be distinguished from terrorists' commitment to using extreme violence even on unarmed civilian populations.¹³⁴ This is why many resources must be poured into countering violent extremism and radicalization.¹³⁵ Coordinating multi-agency teams can be challenging, especially when it involves countering asymmetric warfare.¹³⁶

3.6.2 Porous Borders within Boni Forest

Effective immigration control is an important tool in fighting cross-border crimes in any country since it helps weed out the undesirables from gaining access to a country. Ineffective borders could let in many radicals who inflict heavy damage on a nation.¹³⁷ Border security management is also essential in the fight against terror as it doesn't only regulate people but the smuggling of illicit arms, ammunition, explosives, hazardous materials, and contraband goods, which are sold, and the monies used to finance other terror-related activities.

3.6.3 Insufficient Surveillance and Intelligence Collection

Technology in our modern-day society has become pervasive and ubiquitous. It has come with its advantages and disadvantages. Technology can help security agents maintain security on the one hand, while on the other hand, it brings the challenge associated with data privacy. Governments must enact sufficient legislations to guarantee citizens' data safety while combating insecurity for a peaceful and secure operating environment.¹³⁸ Through legislation, many of the security organs have been given the mandate to act on terror threats in any place around the country. The aim is to protect the citizens through well-thought-out legislation while securing the national interests against potential threats to the nation-state.¹³⁹

¹³² Koehler, Daniel. Violence and terrorism from the far right: policy options to counter an elusive threat. ICCT policy brief, (2019), p. 13.

¹³³ Ibid, (2019), p. 17.

¹³⁴ Hoffman, Bruce. *Extremism in 2019: New Approaches to Facing the Threat*. The Tony Blair Institute for Global Change, (2019), pp. 11-13

¹³⁵ Ibid, (2019), p. 14.

¹³⁶ Koehler, Daniel. Violence and terrorism from the far right: policy options to counter an elusive threat. ICCT policy brief, (2019), p. 17.

¹³⁷ Koehler, Daniel. Violence and terrorism from the far right: policy options to counter an elusive threat. ICCT policy brief, (2019), p. 26.

¹³⁸ Hoffman, Bruce. *Extremism in 2019: New Approaches to Facing the Threat*. The Tony Blair Institute for Global Change, (2019), pp. 11-13.

¹³⁹ Koehler, Daniel. Violence and terrorism from the far right: policy options to counter an elusive threat. ICCT policy brief, (2019), p. 29.

Even though everyone appreciates CVE efforts, many countries' strategies in dealing with terrorism and radicalization are all about prevention. Still, very few countries have policies that illustrate how to deal with already radicalized individuals other than engaging them in combat. The government already has a national strategy to counter violent extremism with tools for dealing with soft power. Soft power generally emanates from a country's culture, political ideals, and policies attractive to other groups of people. These things usually lead to improving relationships between communities and states. This naturally makes people become allies in many things, sometimes even in the fight against terror. This approach will become a big part of Kenya's foreign policy for a long time if the country is interested in degrading terrorist networks by diminishing their recruitment numbers.

3.7 Opportunities of Success for Science and Technology CVE in Boni Forest

Multilateral cooperation is needed between nations to disrupt, engage and degrade terrorist networks that have already become transnational.¹⁴⁰ This is seen clearly in Kenya's military engagement in Somalia, where it is battling not only al-Qaeda in the Islamic Maghreb but also Islamic State (ISIS) and al-Shabaab, who all threaten the entire region.¹⁴¹ But a new measure known as Countering Violent Extremism (CVE) is modeled after the soft approach model. Mumo Nzau and Guyo state that state security is at the crux of many issues within Kenya because it's a defining feature of the nation's economic, social, political, and problems of national cohesion.¹⁴² They posit that the security forces are already overstretched, and this is a serious security threat.

Silke argues that curbing radicalization is crucial to fighting violent extremism. Operation Linda Boni primarily supported Lamu's de-radicalization efforts by dealing with armed radicals from the forest. The military set up makeshift medical centers to offer locals medical supplies and treatment free of charge, food relief programs for the worst hit populations, and engaged with both local and religious leaders in various initiatives, which gave locals to view the Kenyan forces not as a conquering army but rather a pacifying force.¹⁴³

¹⁴⁰Botha, Anneli. *Assessing the vulnerability of Kenyan youth to radicalization and extremism*. Institute for security studies paper 245, (2013), p.13.

¹⁴¹Hoyt, Timothy. *Pakistan, an ally by another name*. US Naval institute proceedings, (2011), pp. 44-50.

¹⁴²Nzau, Mumo and Guyo, Mohammed. The challenge of securing Kenya: past experience, present challenges and future prospects, the journal of social encounters: vol.2: Iss. 1, (2018), p. 37-39.

¹⁴³ Silke, Alfred. *Terrorists, victims and societies: psychological perspectives on terrorism and its consequences*, England, John Wiley and sons, (2013), p.13.

Countering violent extremism prevents people from violence driven by ideology associated with terror groups. It could be a subset of counter-terrorism or just an evolution of the same, but this all depends on how one views the problem.¹⁴⁴ It is important to note that the government acts in a way that doesn't seem to be violating any citizen's right in its fight against extremism for its actions to be deemed legitimate and to have the support of the people.

3.8 Chapter Conclusion

This section found that violent extremism is heavily linked to society's socioeconomic well-being or lack thereof. This doesn't negate the fact that radicalization can also be a byproduct of ideology and the psychological condition of an individual. These latter factors are predominant in Europe in the event of terrorist attacks. Radicalization is usually a dynamic process where an individual views terrorism as a legitimate form of expressing their political and social views. This happens in many ways and cannot be adequately pinned down to specific particular causes in multicultural environments; terrorism is rising as many religious and cultural minorities feel marginalized and sometimes even humiliated. This study establishes that violent extremism incidences have increased in European countries and Kenya. They are often underestimated for their potential to radicalize small pockets of minorities within their communities. Within this context, political radicalization is mainly due to identity politics, while religious radicalization is usually due to marginalization and humiliation. It should also be appreciated that terror organizations have a mix of cultural, psychological, and structural characteristics, all of which have been bred by a combination of historical, political, ethnic, cultural, and religious factors. Now this poses a challenge for governments on how to go about taking preemptive measures against these groups.

¹⁴⁴ Nzau, Mumo and Guyo, Mohammed. The challenge of securing Kenya: past experience, present challenges and future prospects, the journal of social encounters: vol.2: Iss. 1, (2018), p. 37-39.

CHAPTER FOUR

KEY ACTORS AND FRAMEWORKS IN COUNTERING VIOLENT EXTREMISM IN BONI FOREST, LAMU COUNTY

4.1 Introduction

Chapter Three delved into the successes and challenges of using science and technology to counter violent extremism in Boni forest, Lamu County. Specifically, the idea underpinning the counter-violent extremism approach requires leveraging the toolkit of “soft power.” Violent extremism cannot be fought exclusively by applying the traditional hard power approach alone.¹⁴⁵ The chapter acknowledges that violent extremist push factors are structural political, economic and social grievances that must be addressed. Others include ideological and psychological factors.¹⁴⁶ It is important to note that these factors can vary depending on the context and the actors or ideology in question. Identifying and addressing these push factors is essential in preventing the spread of violent extremism and promoting a more peaceful and inclusive society. The chapter also assessed the successes made by the joint security operations in support of the county's counter-violent extremism strategies, particularly in physical infrastructure development and ensuring government presence.

Chapter Four examines the key actors and evaluates the status of international policy frameworks and strategies in countering violent extremism in Kenya. It also explores the nature, foundations, and extent of global connectedness versus the efficacy of measures Kenya has put in place to contain violent extremism. Additionally, the chapter looks at the legal and regulatory frameworks for countering violent extremism, the physical infrastructural frameworks in support of countering violent extremism, and the role of KDF in degrading violent extremism threat through multi-agency operations in Boni forest, Lamu County.

¹⁴⁵ Global Center on Cooperative Security - Role of Civil Society in Countering Violent Extremism: <https://www.globalcenter.org/publications/role-civil-society-countering-violent-extremism/> (Accessed 8 October 22)

¹⁴⁶ United Nations Development Programme (UNDP) - Preventing Violent Extremism through Inclusive Development and the Promotion of Tolerance and Respect for Diversity: <https://www.undp.org/content/undp/en/home/librarypage/crisis-prevention-and-recovery/preventing-violent-extremism-through-inclusive-development-and-t.html>

4.2 Key Actors in Countering Violent Extremism in Boni Forest, Lamu County

The concept of counter-violent extremism came to the fore after the Madrid and London attacks in 2004 and 2005, respectively. The British government initiated a local program to prevent local jihad radicalization. The program's tone was clear, and its policy was compelling. Regarded as the first practical CVE program, it offered a positive message of mutual respect, tolerance, and liberty to prevent local jihad radicalization. In 2006, the UN called on governments to adopt a holistic global anti-terrorism approach that encompasses conducive conditions to combat extremism. Since then, countries have drafted national strategies to combat terrorism with a particular focus on the prevention of VE and the resilience of their societies in the face of terrorism. Scholars are considering the influence of the CVE/PVE concept as a field of development aid and international cooperation. This would significantly impact the efforts to CVE/PVE concept.

In Kenya, the National Government agencies such as the National Counter-Terrorism Center and the National Police Service, in liaison with the local County Government, play a critical role in CVE efforts in Lamu County. They are responsible for developing and implementing policies, strategies, and programs to prevent violent extremism in the county. The Civil society organizations such as Haki Africa and Save Lamu play a crucial role in CVE efforts in Lamu County. They work with communities to promote social cohesion, tolerance, and respect for diversity. They also support and assist individuals at risk of radicalization and help them reintegrate into society.

The UN Action Plan to Prevent Violent Extremism guided the development of national action plans for countries facing such challenges. The Action plan recommended that CVE/PVE strategies are tailored to the local context and should consider the structural causes of VE. Secondly, such strategies ought to adopt a “whole-of-society” approach taking all relevant actors in CVE/PVE efforts on board. Nonetheless, initiatives developed by communities and civil society actors should provide for state involvement as and when deemed appropriate. In this case, the initiatives should aim at mobilizing mainstream actors outside the affected community. In this regard, communities ensure CVE-specific programs that aim to prevent VE.

Opinion leaders’ particularly religious leaders such as imams and pastors, play a significant role in CVE efforts. Their sermons and other religious activities promote peace, tolerance, and respect for diversity. Likewise, community leaders, including elders and chiefs, are key to CVE

efforts. They work with communities to identify and address the root causes of violent extremism. They also provide support and guidance to individuals at risk of radicalization. Education institutions, including schools and universities, also play a critical role in CVE efforts. They promote critical thinking, tolerance, and respect for diversity among students. Education institutions also provide opportunities for students to develop skills and knowledge that can help prevent radicalization. Others include International organizations such as the United Nations Development Programme (UNDP) and the European Union (EU), which play key roles in CVE efforts. They provide technical assistance, capacity building, and financial support to help strengthen local CVE efforts and promote international cooperation to prevent violent extremism.¹⁴⁷

4.3 Kenya's Geographic Location

Kenya is located in the unstable East and Horn of Africa. Kenya neighbors war-ravaged and politically unstable Somalia close to the Middle East and the Indian Ocean Islands of Comoros and Yemen. This makes it easy for terrorists and religious extremists to travel, spread VE ideologies, recruit youths and participate in terror attacks in Somalia and Kenya. The Middle East is considered the hub of terrorism, with several international terrorist groups paying homage to the region. These include the so-called "Islamic State" and the Al-Qaeda terror groups, whose operatives have been known to train in Yemen, Afghanistan, and others. These groups stage terror attacks in Kenya and the Horn of Africa.¹⁴⁸

4.3.1 Kenya's Counter-Violent Extremism Strategies

The activities of August 7, 1998, catapulted Kenya as a front state in the global war against terrorism. The deadly terrorist attack on the American Embassy in Kenya's capital Nairobi, left not less than 224 people dead and another 4,085 injured, making Kenya join the US-led Global War on Terrorism (GWOT) that we propagated after the September 9/11 attacks. The 1998 attacks were followed up by other terror incidents in Kenya that prompted the government of Kenya (GoK), through development partners such as the US, Britain, and other Western-friendly countries develop several counter-terrorism strategies.¹⁴⁹ It was evident that even before 2011

¹⁴⁷ United Nations Development Programme (UNDP) - Preventing Violent Extremism through Inclusive Development and the Promotion of Tolerance and Respect for Diversity:

¹⁴⁸ Mumo Nzau, Counterterrorism in the Greater Horn of Africa 2004-2010; Revisting the Somalia question: Journal of language technology and entrepreneurship in Africa Vol 2." No. 2 (2010). (Accessed on 18 November 2022).

¹⁴⁹Edward Mogire and Kennedy M. Agade (2011) "Counter-terrorism in Kenya, Journal of Contemporary African Studies" (Accessed on 18 November 2022)

Kenya's incursions into Somalia, Kenya had recorded about 300 deaths from terror attacks. "Between 2011 and 2016, over 800 lives were lost, while 1,200 people suffered injuries from attacks perpetrated by the Somali-based Al-Shabaab militants". With the rising GWOT, countries developed counter-terrorism policies and strategies. The government of Kenya developed its counter-terrorism strategies which included "the legal frameworks, law enforcement, border security, counter-terrorism financing, and regional and international cooperation instruments".

According to J Kivunzi and Dr. Mumo Nzau, "Kenya's counter-terrorism strategies adopted soft and hard power approaches to prevent terror activities". "Terror threats in Kenya are perceived to be perpetuated by terror groups from outside the country, such as the Somali-based Al-Shabaab militants and the Al-Qaeda, who have for sure taken responsibility for several attacks in Kenya on diverse dates".¹⁵⁰ The most current Al-Shabaab attack was on Wednesday 4th January, 2023 that targeted the Kenya National Highways Authority (KeNHA) engineers on a routine road evaluation where three people were killed "when their vehicle ran over an improvised explosive roadside device" (IED) planted by suspected Al-Shabaab militants operating in the area. The militant group continues to carry out deadly raids and roadside attacks across Somalia, with spillover attacks in the border counties of Kenya. The 517 square miles of Boni forest remains the deadliest point in Kenya's coastal region. The forest is identified as one of the biggest impediments in the fight against the Al-Shabaab militants. With the biting drought, about 1,500 Aweer communities depend on the Boni forest directly, and another approximately 4.5 million coastal residents rely on the Boni-Dodori forest ecosystem for their livelihoods. The terrorists have intensified the use of improvised explosive devices targeting security personnel and civilians, particularly along the main supply routes in all the border counties. Through social media sites, the Al-Shabaab militant group publicly declared its intent to wage a vicious war against Kenya, the threat that the group has actualized. Before the devastating El Ade attack in 2015, Al-Shabaab issued a strongly worded statement cautioning the government of Kenya of its intention to create a Muslim caliphate along Kenya's North Easter and Coastal boundaries.¹⁵¹

¹⁵⁰ J Kivunzi and M. Nzau, "An evaluation of the effectiveness and challenges of counter terrorism strategies in Kenya, International Journal of social and developmental concerns Vol 2 Article 2/12". (Accessed on 18 November 2022).

¹⁵¹Al-Shabaab, 4 April 2015 Statement as quoted in their media release on the 4th April 2015.

While addressing “the African Union Peace and Security Council meeting in Addis Ababa, Ethiopia, on 28th January 2018”, President of Kenya, Uhuru Muigai Kenyatta, “underscored the importance of protecting and empowering communities through peace-building, reconciliation, and reconstruction processes that include the people exposed to terrorism, VE and larger societies”. The president observed that “Kenya had instituted several measures to counter terrorism and VE, including the establishment of the National Counter Terrorism Center (NCTC), a multiagency mechanism responsible for ensuring that counterterrorism policies are implemented through the development of rehabilitation programs and initiatives to enhance the de-radicalization process through the grant of amnesty to all returnees from Somalia who wish to join the society and abandon Al-Shabaab”. The president further noted that “Kenya had also joined regional forces from Uganda, Ethiopia, Burundi, and Djibouti to stabilize Somalia through the African Mission in Somalia (AMISOM) umbrella”. Kenya continues to participate in the peace mission in Somalia together with other African countries to find lasting peace for troubled Somalia and the Horn of Africa region.¹⁵²

4.3.2 National Counter Terrorism Center

The National Counter Terrorism Center (NCTC) is a multiagency institution established by the Prevention of Terrorism Act to strengthen coordination of counter-terrorism activities. “The organization was created in 2004 through a cabinet decision in response to developing a national counterterrorism strategy in 2003”. In 2014, “through the Security Amendment Act 2014, NCTC became legally established and mandated to coordinate national counterterrorism initiatives, conduct sensitization of Kenyans on countering terrorism and Violent extremism, initiate measures to counter radicalization and foster de-radicalization and also facilitate training on terrorism prevention, among others”.¹⁵³

4.3.3 Ant-Terrorism Police Unit

The establishment of the Anti-Terror Police Unit (ATPU) came into being in 2003. “This was mainly to investigate all terrorism-related matters in response to several terrorist attacks, including the 1998 United States Embassy bombings in Nairobi, the twin attack in an Israeli-owned hotel in Kikambala, and the Israeli passenger jet in Mombasa while on takeoff in 2002”.

¹⁵²Presidential Strategic Communication Unit (PSCU), Capital news, 28th January, 2018”. (Accessed on 29 November 2022).

¹⁵³National Counter Terrorism Centre website <http://www.cunterterrorism.go.ke/about-us>”. (Accessed on 29 November 2022).

“The unit, which falls under the Directorate of Criminal Investigation (DCI) of the National Police Service (NPS), was tasked to prevent terrorist activities, investigate terrorism-related cases, develop profiles for terror suspects, and maintain an updated databank, review and monitor the security of vital institutions and soft targets among other roles”.¹⁵⁴

4.3.4 Special Prosecution Unit/Counter Terrorism Division

The “Special Prosecution Unit was created and domiciled in the office of the Attorney General (AG) to handle terrorism-related cases. It is currently under the office of the Director of Public Prosecutions (ODPP) and handles prosecution matters concerning terrorism”. It also “advices the government on the prosecution of terrorism cases in addition to liaising with the police on the trial of terrorism suspects”.

4.3.5 Joint Counter Terrorism Analysis Centre

In its counter-terrorism strategy, “the government has adopted a multi-agency approach that encompasses a joint counter-terrorism analysis Centre which has representation from the National Intelligence Service, the National Police Service, Kenya Defence Forces, Kenya Wildlife Service, and the Kenya Forest Service, among other government agencies”. The Joint Counter Terrorism Analysis Center (JCTAC) “is an analytical body that deals with actionable counter intelligence on specific threats connected to a particular terror group. It has command centers and tactical units. The cooperation of various agencies enhances investigative and prosecutorial functions and ensures that terror suspects are prosecuted based on credible evidence that can sustain convictions”.¹⁵⁵

4.3.6 National Strategy to Counter Violent Extremism

The “National Strategy to Counter Violent Extremism (NSCVE) was developed in 2016 by the National Counter Terrorism Center to coordinate activities and guide Counties' plans of Action. The strategy was launched to step up efforts to counter violent extremism through de-

¹⁵⁴ Directorate of “Criminal Investigations website, <http://www.dci.go.ke/about-us>”. (Accessed on 29 November 2022)

¹⁵⁵ Joseph Kivunzi and Mumo Nzau, “An evaluation of the effectiveness and challenges of counter terrorism strategies in Kenya, International journal of Social and developmental concerns” Vol 2 article 2/12 (Accessed 28 November 2022).

radicalization, rehabilitation, and integration of youths, some of whom had returned from Somalia”.¹⁵⁶

“The strategy is being implemented at the national level by the Ministry of Interior and National Administration (MOINA) in close liaison with the County Governments and coordinated by County Commissioners together with the Governors and in partnership with local stakeholders involved in de-radicalization processes”. The strategy is anchored in nine pillars: Psycho-social, Education, Political, Security, Faith-based and ideological, Training and Capacity Building, Legal and Policy, and Media and Online. “These pillars are mutually reinforcing and meant to build strong, cohesive, resilient communities against violent extremism and eliminate the recruitment pool for extremists”.

4.4 Legal Framework Instruments

Kenya has enacted “several counter-terrorism laws that criminalize terrorism, the financing of terrorist groups, and the pursuit of terror suspects”. According to Edward Mogire and Kennedy M (2011), “The laws are meant to protect the country from being a haven for terrorists”.¹⁵⁷ Some of these laws are:

4.4.1 Security Laws Amendment Act 2014

The Security Laws Amendment Act 2014 “became effective on 22nd December 2014 and was one of the efforts by the government to enhance the ability of the county on issues of national security”. It strengthened the counter-terrorism legal instruments by amending twenty other Acts. “The Act created agencies that deal with terrorism, such as the Anti-terrorism police Unit, the Bomb Disposal Unit, and the cyber forensic investigating Unit”. It also “strengthened the National Intelligence Service and the Kenya Defence Forces in counter-terrorism operations. Border managements was also strengthened through the enhancement of terrorism screening watch lists and biometric screening of all passengers at the ports of entry”.¹⁵⁸

4.5 Chapter Conclusion

¹⁵⁶ Oscar Gakuo Mwangi, “The conversation, academic vigour, Journalistic flair” (Accessed on 29 November 2022).

¹⁵⁷ Edward Mogire and Kennedy M. Agade (2011), “Counter-terrorism in Kenya, Journal of Contemporary African Studies

¹⁵⁸ Oscar Gakuo Mwangi, “The conversation, academic vigour, Journalistic flair” (Accessed on 29 November 2022).

Countering Violent Extremism efforts in Lamu County involves various actors and frameworks, including national government agencies, local county government, civil society organizations, and international partners. The “National Counter-Terrorism Center and the National Police Service are the key national government agencies responsible for developing and implementing policies, strategies, and programs to prevent violent extremism in Lamu County”. They work closely with the local county government to coordinate efforts and ensure that CVE programs are implemented effectively. The NPS also conducts intelligence operations and security patrols to identify and disrupt potential terrorist activities.

Civil society organizations such as Haki Africa and Save Lamu also play a crucial role in CVE efforts in Lamu County. They work with communities to promote social cohesion, tolerance, and respect for diversity. They also support and assist individuals at risk of radicalization and help them reintegrate into society. They provide technical assistance, training, and funding to national government agencies and civil society organizations to strengthen their capacity “to prevent and counter violent extremism in the county”. Frameworks used in CVE efforts in Lamu County include the “Kenya National Counter Terrorism Strategy (NCTS) and the Lamu County Action Plan on Preventing and Countering Violent Extremism (PCVE)”. The NCTS outlines the national government's overall strategy for preventing and countering terrorism in the country, while the Lamu County PCVE “is tailored to the specific context and needs of the county”. International partners such as the “United Nations Development Programme (UNDP) and the European Union (EU)” also provide support to CVE efforts in Lamu County.

In summary, the key actors and frameworks in countering violent extremism in Lamu County include; “national government agencies such as the NCTC and NPS, the local county government, civil society organizations such as Haki Africa and Save Lamu, and international partners such as the UNDP and EU. The frameworks used include the national Kenya National Counter Terrorism Strategy and the Lamu County Action Plan on Preventing and Countering Violent Extremism”. These actors and frameworks work together “to prevent and counter violent extremism in Lamu County and promote the region's peace, stability, and development”.

CHAPTER FIVE

SUMMARY OF FINDINGS AND DATA ANALYSIS

5.0 Introduction

In this chapter, the researcher presents summary findings and analysis of the data collected. The primary aim of the study was to achieve the following three specific objectives: to examine the role of science and technology in countering violent extremism in Kenya, to evaluate the success and challenges in the use of science and technology in Boni forest, and to establish the key actors and frameworks in countering violent extremism in Boni forest, Lamu County.

5.1 Introduction

The study made findings on the population characteristics, collected data from various actors and stakeholders through interviews and questionnaires sent to respondents. Experts from both national and Lamu county government, as well as various government ministries, departments and agencies such as the Kenya National Defence Forces (KDF), the National Police Service (NPS), the National Intelligence Service (NIS), and the directorate of immigration (DIS) were interviewed to gather the data. Additional participants were selected from local and international humanitarian organizations that operate in Lamu and Garissa Counties. These organizations include the United Nations High Commissioner for Refugees (UNHCR) and Non-Governmental Organizations (NGOs) like Haki Africa. The decision to choose Garissa and Lamu Counties in the North Eastern and Coast regions was based on the fact that these areas are susceptible to violent extremism. This is primarily due to their close proximity to Somalia and the history of numerous terrorist attacks linked to the Al-Shabaab militia, which operates from Somalia. The study questionnaires consisted of a combination of closed and open-ended questions. The data collected was analyzed utilizing the Statistical Package for Social Sciences (SPSS). The research findings have been presented in the form of tables, figures, and descriptive statistics. The data is effectively displayed using tables and figures.

5.2.1 Research Response Rates

The study's target population was 10,000 people, and through purposive sampling, the study targeted a sample size of 10% and administered questionnaires to 100 people. The questionnaires were completed and returned by a total of 90 respondents. This resulted in a response rate of 90%, which is considered satisfactory for the analysis. The sample size was maintained as close to the original intention as possible, and the eligible participants were

assigned sequential numerical codes, ranging from 1 to 90. This coding system allows the reader to understand the representativeness and relevance of the feedback provided by each participant. The study encompassed various concepts that the respondents were asked to elaborate on, including extremism, violent extremism, science and technology, innovation, research and development, changes in human security dynamics, and sources of insecurity resulting from the evolving operational environment. The research participants consisted of individuals from diverse backgrounds, such as security sector practitioners, engineering professionals, academia in social sciences, diplomats, legal institutions, information technology institutions, and residents of Lamu County, among others. The following institutions were specifically targeted for participation: Ministry of Foreign Affairs Kenya, Communication Authority of Kenya, Kenya Defence Forces, Kenya Police Service (NPS), National Intelligence Service (NIS), Taita Taveta University, and Technical University of Kenya.

5.2.2 Designation Distribution

Based on the findings, Table 5.1 illustrates that 6.7% of the respondents held executive positions, 11.1% were senior managers, 20% were middle-level managers, 27.8% were supervisors or held similar roles, and 5.5% were technicians at the operational level. These percentages indicate a reasonable distribution across various management and supervisory levels within the institutions, indicating a correlation between science and technology and human security.

Table 5.1: Designation Distribution

Designation (ICT)	Frequency	Percentage (%)
Executives Officials	6	6.7
Senior managers	9	10.0
Junior Staff	18	20.0
Supervisors	25	27.8
Technicians	26	28.9
Junior staff	6	6.7
Total	90	100

Source: (Researcher 2023)

5.2.3 Age Distribution

The respondents' ages were categorized into nine-year intervals for sampling. The findings revealed that 5% of respondents were younger than 30 years old, 42% were aged between 30 and 39 years, 32% fell within the 40-49 age range, and 21% were between 50 and 59 years old, as displayed in Table 5.2. These results indicate that the field of engineering is presently overseen by a relatively mature group of senior staff members, ranging from 30 to 50 years old. This observation underscores the level of expertise and experience that significantly contributes to the study.

Table 5.2: Age Distribution

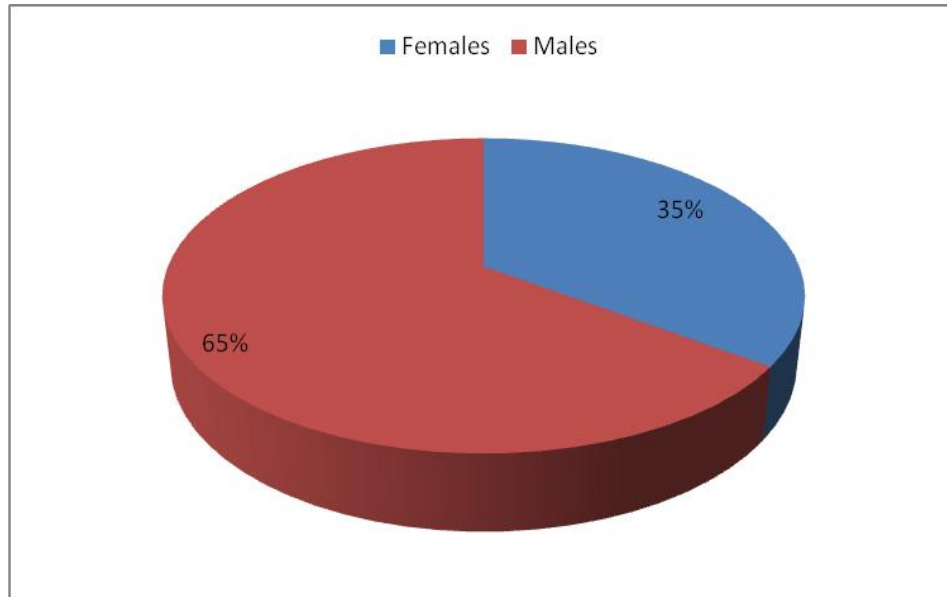
Age (years)	Frequency	Percentage (%)
Below 30	1	5
30 – 39	31	42
40 – 49	12	32
50 – 59	9	21
Total	90	100

Source: Field data (2023)

5.2.4 Gender Distribution

The respondents were distributed across genders, with 65% being male and 35% being female, as depicted in Figure 5.1. This balanced representation enhances the reliability of the findings. It suggests that the field of defense engineering is adequately represented, with a gender distribution of over 30 percent, in accordance with the requirements set forth in the Kenya Constitution of 2010.

Figure 5.1: Gender distribution

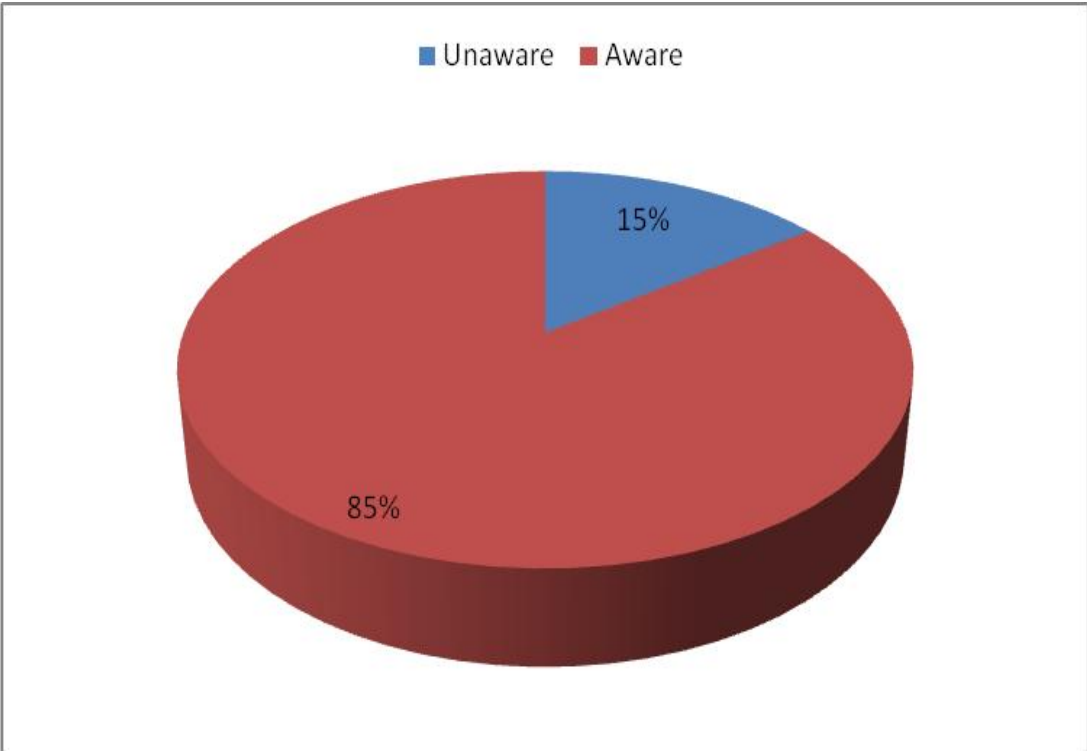


Source: (Author 2023)

5.2.5 Knowledge of Science and Security

The objective of the research was to assess the respondents' understanding of the connection between science, technology, and countering violent extremism. According to the findings, 85% of the participants confirmed their comprehension of these concepts, whereas 15% were unaware, as illustrated in Figure 5.2. These results indicate that the majority of the respondents possessed knowledge about the threat and were capable of effectively responding to potential attacks. The small percentage of respondents who were unaware could possibly be attributed to junior apprentice staff who are currently undergoing training. This aspect contributes to the validity of the study.

Figure 5.2: Knowledge of the nexus between science, technology, and countering violent extremism



Source: (Field data 2023)

5.3 Background Information

This section provides the results obtained from inquiries made to the respondents in order to gather their demographic information.

5.3.1 Organizations Section

The study involved the participation of ninety respondents, representing various organizations, as indicated in Table 5.3 below. The majority of the participants, comprising 30%, were from the department of immigration. National Police Service and Kenya Defence Forces (KDF) each accounted for 13.3% of the respondents. The national counter-terrorism Centre (NCTC), national intelligence services (NIS), and the United Nations high commission for refugees (UNHCR) each contributed 6.7% of the participants. The remaining units were represented by 3.3% of the respondents. This distribution highlights the significant presence of immigration participants, suggesting their crucial role in managing borders and border communities.

Table 5.3 Different Stakeholders

Name of organization	Frequency	Valid percent
Ministry of Defence	45	50.0
National Police Service	6	6.6
National Counter Terrorism Centre	5	5.6
National Intelligence Service	4	4.4
UNHR	3	3.3
Border Security Command	4	4.4
Anti-Terrorism Police Unit	2	2.2
Ministry of Foreign Affairs	3	3.3
Directorate of Immigration	2	2.2
Taita Taveta University	4	4.4
Ministry of Interior and National Administration	4	4.4
Haki Africa NGO	5	5.6
Youth Group	3	3.3
Total	90	100.0

(Source: Researcher 2023)

5.2.2 Current Situation

The participants in the study held diverse positions within their respective organizations. The findings revealed the range of positions occupied by the respondents, as displayed in Table 5.4 below. These positions span across all levels, emphasizing the importance of adopting an inclusive approach that includes both higher-ranking officials and individuals at lower ranks. By involving individuals at various levels, policymakers can more effectively develop and implement policies that aid the community in combating violent extremism.

Table 5.4: Current Situation

Official Designation	Frequency	Percent
Brigadiers (Brigs)	2	4.7
Colonel (Cols)	1	2.3
Senior National Police Officers	3	7.0
Immigration Officers	3	7.0
Lamu County Coordinators	3	7.0
Lamu County Administration Officers	4	9.3
Lamu Sub-County commander	1	2.3
Kenya Forest Officer	1	2.3
Local Nyumba Kumi Coordinators	2	4.7
Administration Police Officers	3	7.0
Bomb Disposal Officer	1	2.3
Commissioner of Lands Official	1	2.3
Chief Principal local Secondary School	1	2.3
Local NGO Coordinator	1	2.3
Senior Immigration Staffer	1	2.3
Local Intelligence Coordinator	1	2.3
Foreign Analyst	1	2.3
County Chief Officer	1	2.3
Refugee Coordinator	1	2.3
Academic Research Assistant	1	2.3
Total	43	100.0

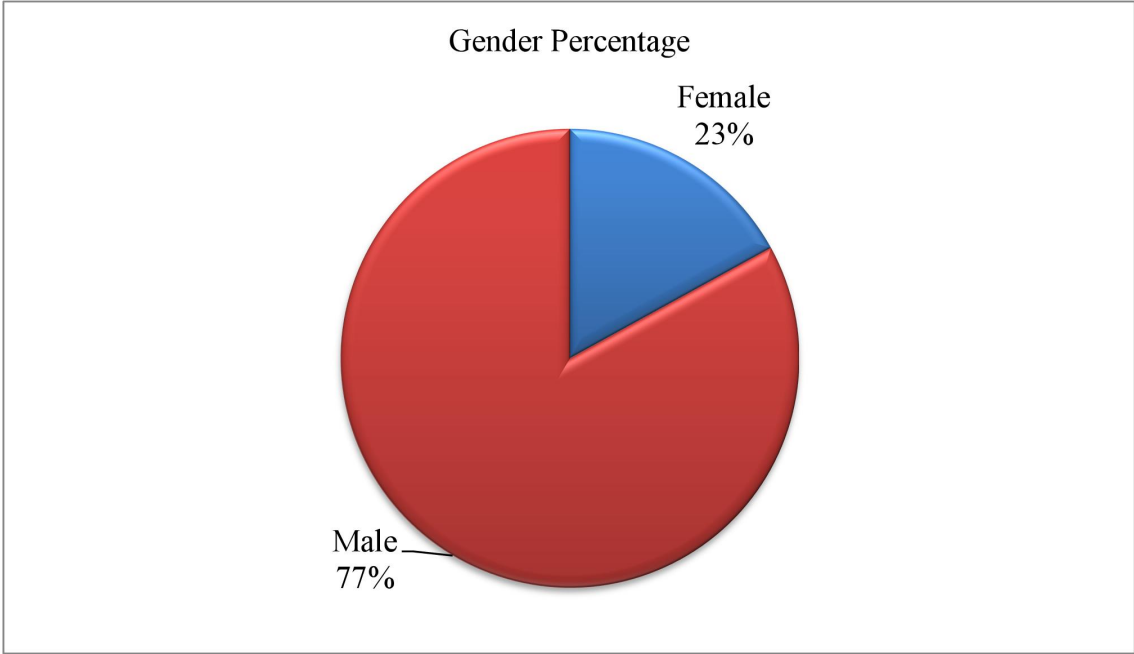
(Source: Researcher 2023)

5.2.3 Gender

Of the respondents in this study, 77 percent were male, while 23 percent were female. A huge dominance of men is partly explained by the fact that strategies to fight violent extremism are gender-biased, and initiatives focus on male community members.

Further, most respondents deployed in the targeted border regions are primarily male. However, both genders indicated the importance of community involvement in counterterrorism initiatives. The data is presented in Figure 5.3 below

Figure 5.3 Representations by ‘Gender’

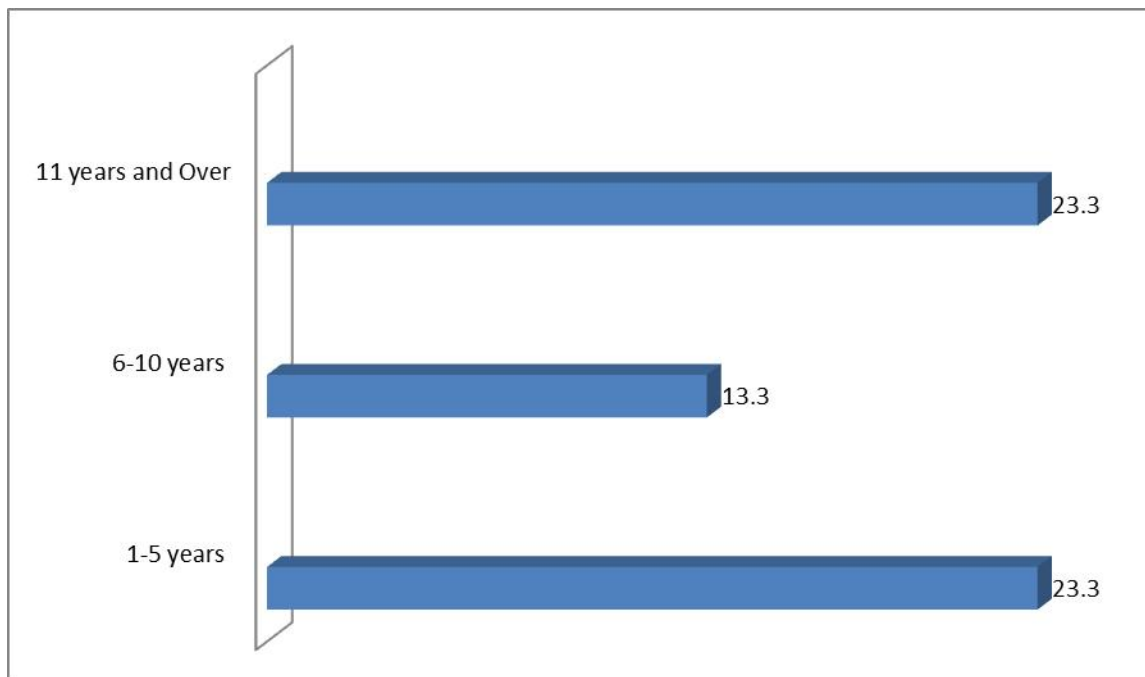


(Source: Researcher 2023)

5.2.4 Representation by experience

The data in Figure 5.4 illustrates that a majority, specifically 63.3% of the participants, possessed 11 years of experience or more. Additionally, 13.3% reported having 6-10 years of experience, while 23.3% indicated 1-5 years of experience.

Figure 5.4 Representation by Experience



(Source: Researcher 2023)

5.2.5 Education Levels

Table 5.5 below captures the educational backgrounds of the respondents, which play a crucial role in implementing the strategies agreed upon by the community and the government. Among the respondents, 6.3% held either Masters Qualifications or a Ph.D. degree. Additionally, 28.1% possessed high school qualifications, 37.5% were the highest qualifications held Diploma Certificates.

Table 5.5 Education Levels

Education Level	Frequency	Percent	Cumulative percent
High School	9	28.1	28.1
Tertiary College	12	37.5	65.5
University undergraduate	7	21.8	87.4
University Master	2	6.3	93.6
University Doctorate	2	6.3	
Total	32	100.0	100.0

(Source: Researcher 2023)

5.3 Violent Extremism in Kenya

5.3.1 Susceptibility to Violent Extremism

Table 4.4 presents the various explanations given by respondents regarding the vulnerability of Lamu County to violent extremism attacks, as Kenya has experienced multiple attacks. Table 5.6 displays the captured data, outlining the top 10 reasons identified, which include factors such as the presence of an unmarked and porous border, high youth unemployment, religious influences, affiliations of both state and non-state actors, corruption, proximity to Somalia, the involvement of the Kenyan Defense Forces (KDF) in Somalia, instability in neighboring regions, poverty, marginalized communities, and inadequate coordination among government agencies.

Table 5.6 Susceptibility to Violent Extremism

PARTICULARS	FREQUENCY	PERCENTAGE
Un-controlled Boni Forest	20	21.9%
Youth Bulge and Unemployment	1	1.1%
Religious factors	7	7.7%
State and non-state actors that target disgruntled people	5	5.5%
Corruption	2	2.2%
Proximity to Somalia	8	8.8%
KDF intervention in Somalia	20	21.9%
Unstable neighboring government /states	15	5.6%
Poverty factors	2	2.2%
Marginalized communities (unbalanced distribution of resources)	2	2.2%
Lack of coordination among security agencies	1	1.1%
Lack of community Key leader engagement on security issues	1	1.1%
Inadequate intelligence gathering	1	1.1%
Lack of both soft and hard power strategies	2	2.2%
Compromised communities living within Boni forest	2	2.2%
Undefined Foreign policy	3	2.2%

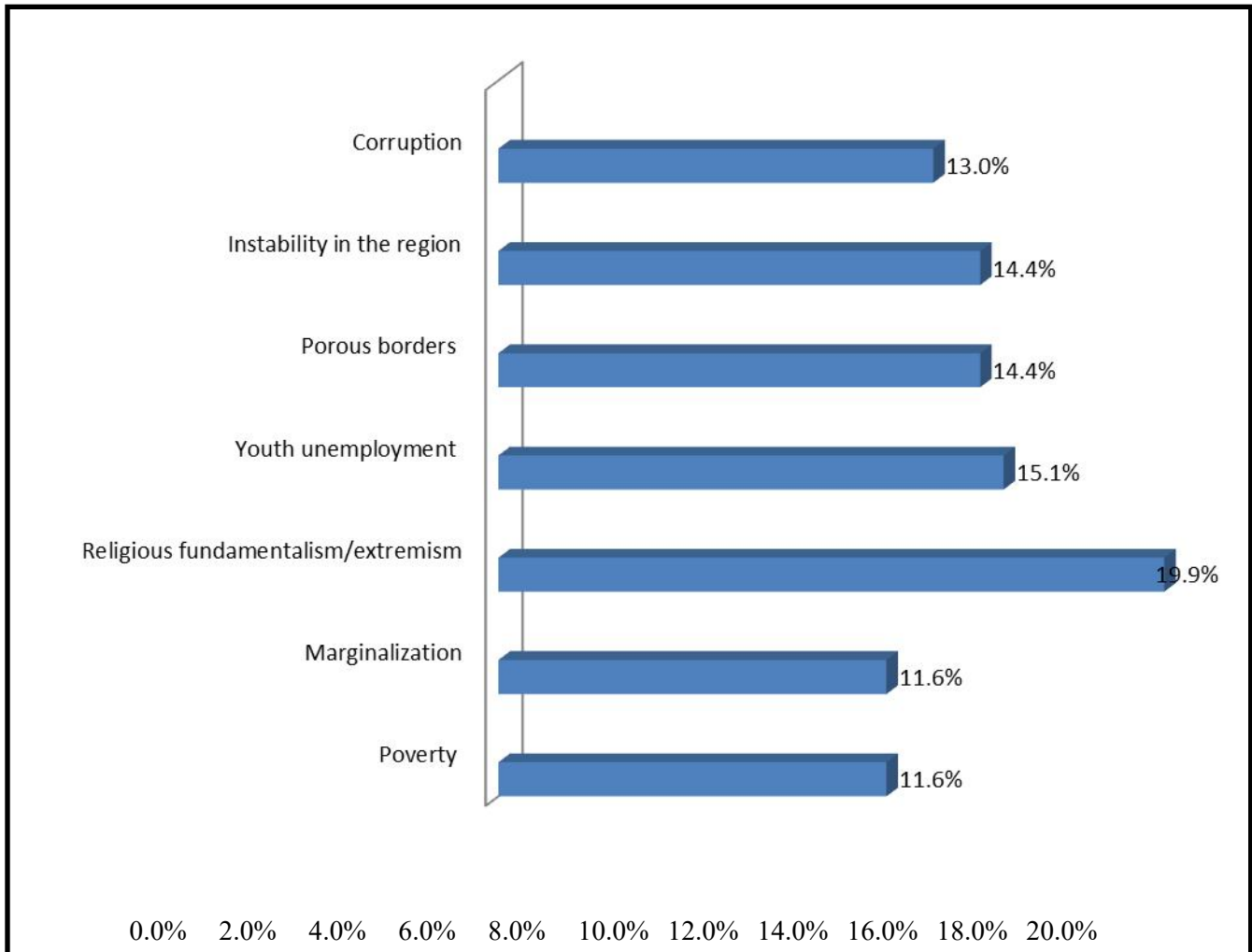
The Lamu County land question	2	2.2%
Lack of patriotism	2	2.2%
Large number of returnees from Somalia	2	2.2%
Sleeper cells networks in the Kenya	2	2.2%
Lack of data and regional interconnectivity	2	2.2%
Poor community engagement and policing	2	2.2%
Total	91	100.0%

(Source: Researcher 2023)

5.3.2 Causes of Violent Extremism

Figure 5.5 below presents the respondents' opinions on the causes of violent extremism. When examining the factors contributing to this issue, the respondents highlighted the following causes: religious fundamentalism (19.9%), marginalization (11.1%), poverty (11.6%), youth unemployment (15.1%), porous borders (14.4%), regional instability (14.4%), and corruption (13%). It is noteworthy that although discussions surrounding violent extremism often avoid religious sentiments, the majority of respondents still perceive religious fundamentalism as a significant factor. Other potential causes, such as targeting security installations or affiliating with perceived enemies, do not appear on the list. Ultimately, the respondents emphasize the importance of communities having a sustainable income, effective border control, and reduced corruption in combating violent extremism.

Figure 5.5 Causal Representations



(Source: Researcher 2023)

5.4 Use of Science and Technology in Countering Violent Extremism in Kenya

When asked whether science and technology have been used in countering violent extremism in Kenya, the respondents acknowledged that science and technology had been used in CVE in Kenya. Table 5.7 below presents the strategies identified by the respondents, with the top strategies being: the establishment of the National Counter-Terrorism Center (NCTC) utilizing technology for intelligence gathering and analysis to prevent attacks (9.6%). Adoption of a multiagency approach (8.5%). Formation of the Anti-Terrorism Police Unit (ATPU) (8.5%). Country-wide awareness and sensitization campaigns (6.4%). Implementation of surveillance

measures (6.4%). Training and deployment of specialized units (6.4%). These strategies were highlighted as effective means to address the threat of terrorism.

Table 5.7 Counter-Violent Extremism Mechanism

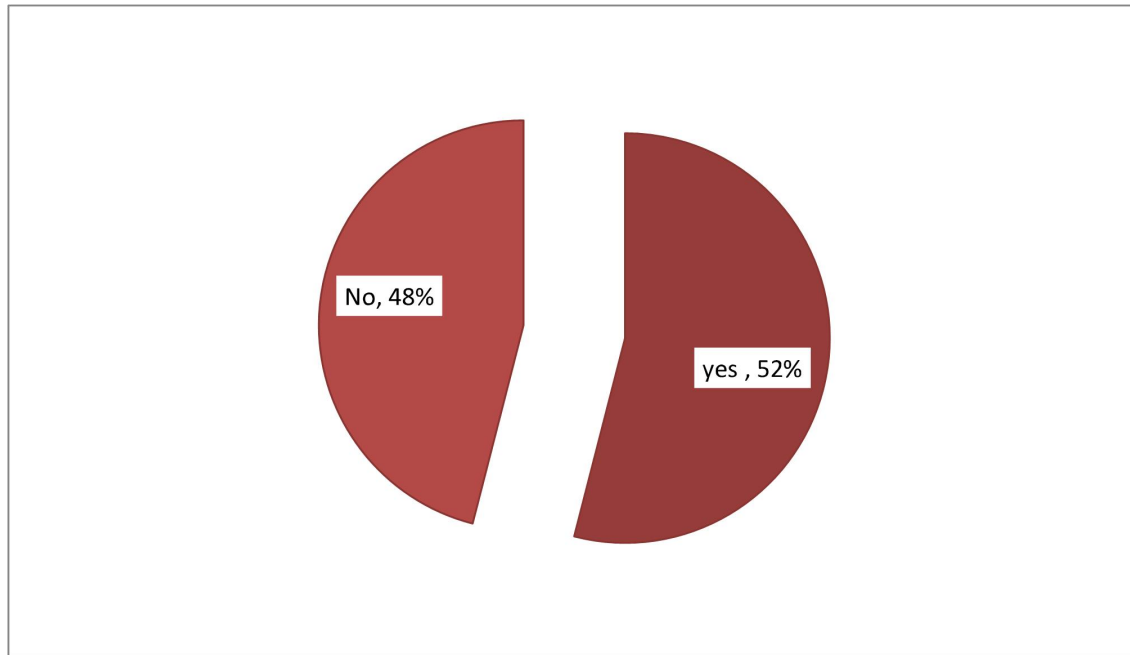
Strategies	Frequency	Percent
Establishment of NCTC as the focal point	8	9.1%
Deployment of the multi-agency approach to address VE	6	6.8%
Establishment of an anti-terrorism police unit with the NPS	6	6.8%
Sensitization and Awareness Programs	7	7.95%
Training and deployment of specialized security units	7	7.95%
Increased surveillance along and within the Boni forest	7	7.95%
De-radicalization programs by various stakeholders	6	6.8%
Strategies to create jobs for the youth	5	5.7%
Engaging the communities living within the Boni forest	5	5.7%
Govt. initiatives like Nyumba Kumi	4	4.5%
Rehabilitation of returnees	4	4.5%
Increase capacity building at law enforcement agencies	3	3.4%
Granting amnesty to returnees	3	3.4%
Monitoring and disbanding terror cell	3	3.4%
Increase footprints along the common border	3	3.4%
Stabilization of Somalia	3	3.4%
Formulating policies that will address the menace	2	2.3%
Vetting of communities living within Boni Forest	2	2.3%
Offering more vocational training	2	2.3%
Counter-violent extremism sanctions	2	2.3%
Enhance security	2	2.3%
Investigations	2	2.3%
Total	88	100.0%

(Source: Researcher 2023)

The data indicates a lack of substantial efforts in harnessing the potential of communities to counter violent extremism. The government's current approach to countering violent extremism is primarily focused on communities but lacks a comprehensive community-centered strategy that fosters partnership and trust between the government and local communities. While the establishment of the National Counter-Terrorism Center (NCTC), various police formations, and the adoption of a multi-agency approach are commendable strategies, there is room for greater emphasis on community engagement and collaboration. A community-focused approach, involving active participation and cooperation between the government and local communities, is essential for effectively addressing the issue of violent extremism. The center uses software tools to monitor social media and other online platforms to detect extremist propaganda and recruitment activities. The Kenyan government has also set up a hotline number and an online reporting platform for citizens to report suspicious activities or behavior that could be linked to violent extremism. The government has also used biometric technology through the digital forensic laboratory to identify, track suspects, seize, acquire, and analyze all electronic devices used in improvising explosive devices and prevent the extremists from crossing borders.

In addition, international organizations such as the United Nations (UN) and the United States Agency for International Development (USAID) have provided technical assistance and training to Kenyan security agencies on using technology to counter violent extremism. For instance, USAID has implemented a program that uses data-driven approaches to identify and address the root causes of extremism. Furthermore, it is crucial to enhance community engagement alongside awareness and sensitization efforts. It is noteworthy that among the strategies mentioned, only a limited number specifically target the Boni forest communities. In conclusion, science and technology have played a significant role in countering violent extremism in Kenya, and their application is anticipated to further grow in the future. However, when asked about whether these strategies effectively address the underlying causes of violent extremism, the respondents' opinions were divided, with 52% answering yes and 48% answering no. This data is captured in the figure.

Figure 5.6 Representations by Opinion



(Source: Researcher 2023)

Further, respondents were asked about the nexus between science and technology on one hand and violent extremism on the other hand. Most respondents believed Science and technology had been used in various ways to advance violent extremism. For example, respondents observed that extremists used online platforms to spread their ideologies, recruit new members, and plan attacks. They also used sophisticated weapons and explosives developed through scientific research. On the other hand, science and technology can also be used to counter violent extremism by monitoring online activities, identifying and tracking extremist groups, and developing innovative ways to prevent radicalization. The results are captured in Table 5.8 below:

Table 5.8 Representation by Experience

Experienced	Frequency	Valid Percent
Effective	5	19.2
Exceedingly effective	8	30.7
Not very effective	3	11.5
Excellent	4	15.3

Fairly effective	6	23.0
Total	26	100.0

(Source: Researcher 2023)

Among the respondents, a significant portion, accounting for 30.7%, They voiced their confidence in the effectiveness of science and technology, rating them as somewhat effective, very effective, fairly effective, or effective. On the other hand, 11.5% of the participants held the view that science and technology were ineffective.

5.4.1 Science and Technology Tools Utilized in Counter-Violent Extremism

Science and technology tools are being utilized in various ways to counter violent extremism. One example is using social media monitoring tools to identify and track extremist groups and their activities. The county government of Lamu has also developed a mobile phone application called "Nyumba Kumi" that allows citizens to report suspicious activities in their localities.¹⁵⁹ Additionally, the government has invested in research to understand better the factors contributing to radicalization and develop effective prevention and intervention strategies.¹⁶⁰ Furthermore, the country has established a cybercrime unit that uses advanced technology to investigate and prosecute individuals who use the internet to promote violent extremism. As the government implemented these strategies, various challenges were identified, as reported by the respondents. These challenges encompassed corruption, with 19.3% of participants highlighting it as a concern, limited resources to counter violent extremism, cited by 8.0% of respondents, and poverty, identified by 12.5% of participants. Mistrust between communities and government security agencies was mentioned by 5.6% of respondents. Additional obstacles mentioned encompassed limited capacity, apprehension of extremists, opposition from local communities, absence of trust among communities, and absence of political resolve. Please refer to Table 5.9 for a comprehensive presentation of the data.

¹⁵⁹ Truth, Justice & Reconciliation Commission, (2013). The Final Report of the Truth, Justice & Reconciliation".
¹⁶⁰ "Constitution of Kenya (2010). Retrieved from <http://digitalcommons.law.seattleu.edu/tjrc/7/>.(20 November 2022)"

Table 5.9 Challenges in Implementing Strategies

Challenges	F	Percent
Feeling targeted because of their faith	3	3.4%
Lack of technological investment	2	2.2%
Inability to access resources	7	8.0%
Poverty	11	12.5%
Legal implications	4	4.5%
Mistrust among communities and security agencies	5	5.6%
Lack of capacity	2	2.2%
Lack of goodwill from some stakeholders	2	2.2%
Resistance by local communities	4	4.5%
Corrupt Society	17	19.3%
Religious extremism does have economic compensation	2	2.2%
Limited availability of intelligence reports	2	2.2%
Inadequate technical expertise	2	2.2%
Fear of terror groups	1	1.1%
Unstable political climate in Somalia	3	3.4%
Lack of patriotism	3	3.4%
Unmarked border between Kenya & Somalia across the Boni forest	3	2.8%
Poor coordination by security agencies	1	1.1%
Unnecessary civil rights groups e.g., Haki Africa, KNHRC	2	2.2%
Demoralized security personnel	1	1.1%
Failure to involve all stakeholders	1	1.1%
High number of unemployed youths	2	2.2%
Cross-border migration between the communities	3	3.4%
Slow reaction from the government	2	2.2%
Key actors often lack awareness and knowledge of these strategies.	2	2.2%
Insufficient political determination	3	3.4%
Total	88	100.0%

(Source: Researcher 2023)

5.5 National Approaches in Utilizing Science and Technology to Counter Violent Extremism in Lamu County

In order to enhance comprehension of the national strategies employed in Lamu County for countering violent extremism through the utilization of science and technology, respondents acknowledged several key aspects. They recognized that extremist groups often exploit social media platforms for recruitment and dissemination of propaganda. To address this, surveillance technologies such as drones, CCTV cameras, and biometric systems were identified as effective tools to monitor activities in high-risk areas and identify potential threats. Furthermore, the implementation of robust cyber security measures was deemed necessary to safeguard against cyber-attacks orchestrated by extremist groups. This includes securing government networks and data and educating the public on safe online practices. Promoting science and technology education in schools and universities is another national approach that can help to develop a skilled workforce to counter violent extremism. This creates opportunities for young people in the region, reducing the likelihood of radicalization.

Four conceptualizations stood out when asked how they conceptualize the source of Boni forest extremism. Almost half of the respondents (38.8%) described proximity to the neighboring unstable Somalia with a porous border that allows for easy infiltration of militants and smuggling weapons and supplies into the Boni forest as indigenous people or communities residing within or around the Boni forest. The following categorization accounts for 8.3% of the respondents who viewed Marginalization grievances. Respondents cited the region's socio-economic challenges and marginalization, including poverty, limited access to education and healthcare, and inadequate infrastructure. Extremist groups can exploit these grievances to recruit disaffected individuals who feel marginalized and seek a sense of belonging or purpose. Some respondents labeled Ethnic and religious diversity as a source of tensions and divisions that extremist groups exploit to fuel conflicts and recruit followers who share the same culture and language. Limited government presence and security forces in most remote areas around Boni Forest created a security vacuum, allowing extremist groups to establish a foothold and operate with relative impunity. The analysis of the four primary conceptualizations revealed an important realization regarding the communities residing in and around Boni Forest. These communities are situated along the border, sharing commonalities in terms of language, culture, and origin.

Consequently, such communities may challenge the anticipated outcomes of national interventions. For a comprehensive overview of the data, please refer to Table 5.10.

Table 5.10 Conceptualization by the local communities

Proposition	Frequency	Valid Percent
Proximity to the porous border cutting across into unstable Somalia within or around the Boni forest	14	38.8%
Marginalization and historical grievances by indigenous communities residing within or around the Boni forest	3	8.3%
Ethnic and religious diversity in culture and language	5	13.8%
The indigenous people verses those considered immigrants	6	16.6%
Whole population, actors and stakeholders in Lamu County	3	8.3%
Communities who live within the Boni forest	3	8.3%
Communities who reside in Boni forest have access across the borders	2	5.5%
Total	36	100%

(Source: Researcher 2023)

5.5.1 Successes of countering violent extremism in Boni forest, Lamu County

The Kenyan government has implemented various strategies aimed at countering violent extremism in the region. For instance, it has worked with local communities to promote social cohesion and has also provided support to youth and women's groups to help them build their economic resilience and reduce their vulnerability to extremist recruitment. The multi-agency team operating in Lamu County has made remarkable progress in degrading the external threat from the Al-Shabaab militia. However, the threat emanating from Boni forest remains challenging and is an ongoing effort.

5.5.2 Challenges Faced in Countering Violent Extremism in Boni Forest

The Boni forest communities encounter various challenges, as identified by the respondents. These issues include marginalization, which was the most frequently cited concern at 17.0%. Other notable problems mentioned were cross-border attacks (5.4%), movement of illegal and contraband goods (4.1%), violent extremist attacks (4.1%), transnational crimes (3.5%), slow

government action (3.5%), and poor infrastructure capacity (3.5%). It is crucial to acknowledge the interconnectedness between the causes of terrorism and the challenges experienced by border communities. Therefore, active engagement with these communities is vital, as these issues can potentially contribute to the facilitation of terrorism. For a comprehensive breakdown of the data, please consult the following reference/source. Table 5.11.

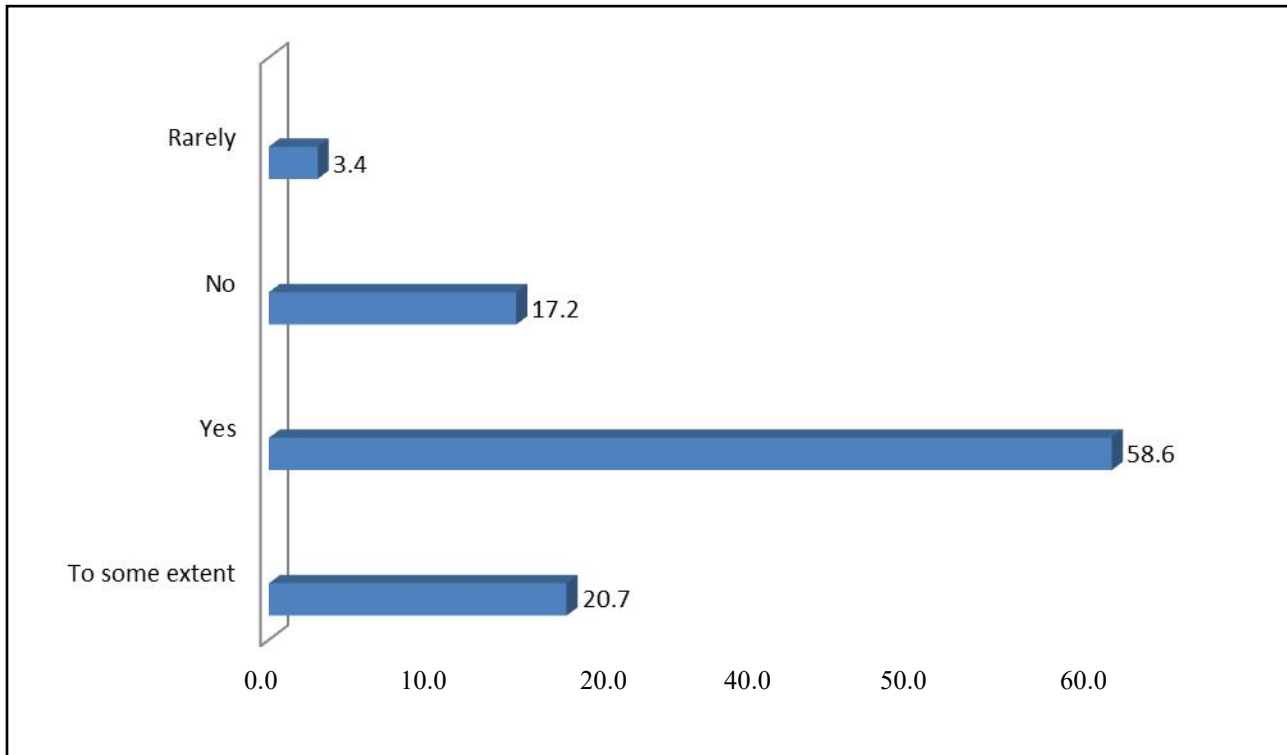
Table 5.11 Challenges Faced in Countering Violent Extremism in Boni Forest

Problems	Percent
Marginalization due to their remote location	17.0%
Frequent attacks by Al-Shabaab militia	5.4%
Illegal goods and contraband emanating in Somalia	4.1%
Violent extremist attacks	4.1%
Radicalization	4.1%
Transnational crimes	3.5%
Government’s slow action	3.5%
Poor infrastructural capacity	3.5%
Enhanced security during verification of travel documents	3.5%
Others	51.3%
Total	100.0%

(Source: Researcher 2023)

When questioned about the involvement of border communities in counter-violent extremism efforts, a portion of the respondents expressed their perception of government initiatives. Approximately 17.2% firmly stated that the government is not engaging them in such efforts. In contrast, the majority of respondents expressed varying degrees of involvement. A small percentage, 3.4%, considered the involvement to be infrequent, while a significant 58.6% described it as active. Additionally, 20.7% believed that the involvement exists to some extent. For a visual representation of the data, please refer to Figure 5.7.

Figure 5.7 Involvement of border communities in counter Violent Extremist strategies



(Source: Researcher 2023)

5.5.2 Level of Involvement

The participants were inquired about the level of community involvement in counterviolent extremism strategies. The findings revealed several ways in which communities participated, including: providing vital security information or intelligence about the region (34%); identifying groups (6.8%); engaging in community policing (9.1%); receiving training from local NGOs (4.5%); and other forms of engagement as displayed in table 5.12. The nature of these involvements suggests that communities are viewed primarily as intelligence sources rather than true partners in counter-terrorism, implying a limited partnership with the government.

Table 5.12 Level of Community involvement in Counter Violent Extremism

Type of Involvement	N	Percent
In providing vital details regarding VE operations	15	34.0%
Identifying the sources of instability among individuals or groups	2	4.5%

By means of community policing endeavors	4	9.1%
Engaging in training programs alongside NGOs operating in Lamu County	3	6.8%
Through alternative conflicts resolutions mechanisms	3	6.8%
Engagement with government agencies	2	4.5%
Public meetings and barazas	2	4.5%
Organized counter extremism forums	2	4.5%
Conducting awareness sessions or public forums by administrative officers	2	4.5%
Incorporating the participation of community elders in local security efforts	2	4.5%
Intelligence provision	2	4.5%
Boni forest management	2	4.5%
Relationship with law enforcement officers	2	4.5%
	44	100.03.3%

(Source: Researcher 2023)

5.5 Community Engagement as Key Actors in CVE

When respondents were asked about the government's efforts to engage them in counter-violent extremism, various models of engagement were explored. The popular models identified include the Nyumba kumi initiatives (20.0%), authorities conducting sensitization campaigns (18%), organizing barazas (10.0%), involvement of county officials (8.0%), implementing community programs (8.0%), and establishing liaisons between local security committees and national committees (8.0%). Additional models mentioned in Table 5.13 include utilizing sports (12.0%) and forming partnerships with religious organizations (6.0%).

Table 5.13 Community engagement models

Engagement models	Frequency	Percent
Nyumba kumi	10	20.0%
Sensitization by Kenya Forest Service officials	9	18.0%
Local Administrative officials Barazas	5	10.0%
Presence of local administration police	4	8.0%

Proposing a development initiative aimed at generating employment opportunities	3	6.0%
Involving informants and sharing intelligence with security agencies	1	2.0%
Liaison between local security committees and national	4	8.0%
Liaison with religious groups in the region	3	6.0%
Border control and oversight units	2	4.0%
Improve their infrastructure	3	6.0%
Involvement in Sports activities	6	12.0%
	50	100.0%

(Source: Researcher 2023)

Table 5.14 Challenges faced in Implementing Key Leader Models

Challenges	Frequency	Percent
Apprehension about becoming a target of suspected extremists	14	16.2%
Suspicious and lack of confidence	12	13.9%
Failure to cooperate with the local authorities	7	8.1%
Vulnerability of community groups	3	3.4%
Insufficient knowledge among the general public	2	2.3%
Porous nature and limited accessibility certain parts of the Boni forest	2	2.3%
Existence of individuals who sympathize with the cause group	5	5.8%
Low motivation due to inadequate compensation for their work	5	5.8%
Lack of sufficient resources	4	4.6%
Religion factors and affiliations	7	3.0%
Improvised explosive devices threats hence curtailing free movement	5	5.8%
They may choose to withhold cooperation due to the prioritization of community interests	5	5.8%
Unlawful trafficking of individuals, weapons, and munitions	3	3.4%
Insufficient governmental capabilities or limited administrative capacity	4	4.6%
Insufficient resources and inadequate training	2	2.3%

Distance from administrators	3	3.4%
Transnational mobility of the community	2	2.3%
Inadequate protection or insufficient safety measures	2	2.3%
Dishonesty or unethical behavior	2	2.3%
Insufficient financial resources	2	2.3%
	86	100.0%

(Source: Researcher 2023)

5.5.5 How effective Boni Forest Community in counter Violent Extremism Strategies

During the evaluation of the effectiveness of community engagement strategies in countering terrorism in the Boni Forest region, respondents expressed their discontent with the government's present level of involvement. According to their perspectives, more robust efforts are required, with active involvement of communities playing a pivotal role. They emphasized the significance of community participation in gathering essential information to prevent and deter terrorist attacks.

To enhance counter-violent extremism strategies, respondents offered a range of suggestions, as presented in Table 5.15. The primary recommendations included consistently raising community awareness and promoting CVE measures (20.9%), involving in-cooperating them into community policing to foster trust (5.8%), enhancing local infrastructure to the benefit of local people (6.9%), strengthening of communication channels effectiveness (4.6%), utilizing organized regular security leaders gatherings (3.4%), and other proposed strategies. These suggestions highlight the importance of empowering and engaging communities as key stakeholders in countering terrorism in the Boni Forest area.

Table 5.15 Effective Border Community Engagement Strategies to Counter Violent Extremism

Effectiveness in Strategies	N	Percent
By consistently raising community awareness and promoting CVE measures	18	20.9%

In-cooperating them into community policing to foster trust	5	5.8%
Strengthening of communication channels effectiveness	4	4.6%
Enhance local Infrastructure to the benefit of local people	6	6.9%
Organized regular security leaders gatherings (Barazas)	3	3.4%
Gazette the Boni forest	1	1.1%
Ensure allocation of adequate resources	3	3.4%
Engage local community in decision making	7	3.2%
Ensure sufficient security measures	1	1.1%
Promote youth employment opportunities	3	3.4%
Implement a robust Nyumba Kumi system	4	4.6%
In cooperate their inputs in curriculum development for CVE	2	1.6%
Gaining an understanding of their unique dynamics	2	1.6%
Implement monitoring and support to National Security Agency	3	3.4%
Promote culture of voluntary information sharing among them	2	1.6%
Establishing early warning systems	2	1.5%
Grand pardon to individuals returning from Somalia	3	3.4%
Ensure provision of basic needs	4	4.6%
Enforce strict penalties for individuals involved in radicalization activities	2	1.6%
Addressing the underlying causes of violent extremism	5	5.8%
Cease the unauthorized disclosure of information provided by individuals	2	1.5%
Initiate projects to spur opportunities	3	3.5%
Implement de-radicalization programs	1	1.1%
	86	100.0%

(Source: Researcher 2023)

5.6 Conclusion

In this chapter, the primary focus was on examining the various approaches employed by the government to engage local communities in combating violent extremism. However, several obstacles have been identified that impede the establishment of effective collaboration by Boni

forest communities and the multi agencies team operating in Lamu County. It is crucial to overcome these challenges to ensure the efficacy of these strategies.

The final chapter has the objective of presenting a summary of the research findings, delivering concluding statements derived from the conducted analysis, and putting forth a set of recommendations. Through summarizing the significant insights derived from the study, providing conclusive remarks, and proposing actionable recommendations, the concluding chapter seeks to make a valuable contribution to the field of countering violent extremism and foster enhanced collaboration between communities and security agencies.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.1 Summary

While a comprehensive approach involving multiple stakeholders is crucial for effective de-radicalization efforts, it is important for the government to address underlying structural and historical grievances through good governance. This recognition highlights the need for a holistic approach that goes beyond community engagement and tackles the root causes of radicalization. To successfully counter extremism, the government should prioritize good governance practices that promote inclusivity, transparency, and accountability. By addressing socio-economic disparities, political marginalization, and historical grievances, the government can alleviate the conditions that contribute to radicalization. Furthermore, engaging civil society organizations, religious leaders, and local communities is essential in this process. These stakeholders play a significant role in promoting dialogue, reconciliation, and social cohesion. Their involvement can facilitate trust-building, provide support networks, and promote alternative narratives to extremist ideologies.

In addition, efforts should be made to promote education, vocational training, and economic opportunities for individuals at risk of radicalization. By addressing socio-economic factors and providing avenues for personal and professional growth, the government can offer alternatives to extremist groups and ideologies. It is important to recognize that countering radicalization and promoting de-radicalization is a long-term process that requires sustained commitment and collaboration among all stakeholders. By addressing structural and historical grievances through good governance practices and involving various actors in the process, the government can create a more conducive environment for de-radicalization and ensure a lasting impact in countering violent extremism.

Government interventions in armed external aggressions, incursions, and influences go a long way in establishing lasting peace and security. De-radicalization programs seek to address the complex social, economic, and psychological factors to build resilience, promote tolerance and foster positive social change. In Lamu County, armed Al-Shabaab militia within the expansive Boni forest complicated the county stakeholders' efforts, prompting the national government deployment of the multi-agency team in support of the Lamu County government. Unfortunately, the 1,339 km² forest presented surmountable odds to the multi-agency team due to the dense

forest cover, soggy terrain, poor visibility, tree canopy cover, and inaccessibility. Whereas the operation Linda Boni (Protect Boni) was civilian-led, an internal operation with the KDF deployed on its secondary role of supporting local authorities, the presence of armed militia prompted the government to revise its operational plans through a series of operational mandate revisions to the current operation Amani Boni (Peace in Boni) with KDF taking over the mandate for effective delivery of the mission.

6.2 Conclusions

Violent extremism continues to pose a significant threat to national security in Kenya, particularly in border communities. These communities face numerous challenges, including marginalization, cross-border attacks, and the proliferation of illegal arms and contraband. It is imperative to address these issues to mitigate the escalation of the terror threat. The study highlights the striking similarities between the causes of violent extremism and the challenges faced by border communities. If left unaddressed, these problems can become fertile ground for terrorist groups to exploit. While communities are involved to some extent in countering violent extremism strategies, their engagement is inconsistent. The government's interaction with communities often occurs only when they provide information about extremist suspects. This limited involvement suggests that communities are not fully integrated into counter-violent extremism efforts.

To address these gaps, the government needs to establish comprehensive partnerships with stakeholders to develop and implement effective counter-violent extremism initiatives. By actively involving communities, civil society organizations, religious leaders, and other relevant stakeholders, a sense of trust can be built. This collaborative approach ensures that community perspectives, insights, and experiences are integrated into policy development and implementation. Fully engaging communities in countering violent extremism requires more than just information sharing. It involves empowering communities to take an active role in preventing radicalization, fostering dialogue, and promoting social cohesion. By addressing the underlying issues faced by border communities, such as marginalization and limited economic opportunities, the government can address the root causes of violent extremism and create an environment that is resistant to extremist ideologies.

In conclusion, it is crucial for the government to forge strong partnerships and work closely with all stakeholders in developing and implementing comprehensive counter-violent extremism

initiatives. By fully involving communities and addressing their challenges, a sense of trust can be fostered, enabling more effective and sustainable efforts to counter the threat of violent extremism in Kenya. The research conducted in this study has shed light on the importance of engaging local communities in countering violent extremism. While the government has made efforts to involve communities in the Boni Forest region, respondents expressed their dissatisfaction with the current level of engagement, emphasizing the need for more effective strategies. Various obstacles were identified that hindered collaboration between border communities and security agencies, which highlights the significance of addressing these challenges to ensure the efficacy of counter-terrorism efforts. Based on the findings, it is evident that continuous community awareness and sensitization programs play a vital role in countering violent extremism. Creating awareness through ongoing engagement and education can empower communities to recognize and report potential threats, thus enhancing the overall security situation. In addition, involving communities in border management initiatives can help in monitoring and preventing illegal activities, including the movement of extremists and weapons across borders.

Moreover, providing incentives can serve as a motivating factor for community members to actively participate in countering terrorism. These incentives could include economic support, job opportunities, or educational programs aimed at empowering individuals and communities. Clear and effective communication channels between security agencies and communities are also crucial for building trust and facilitating the exchange of information.

6.3 Recommendations

It's worth noting that countering violent extremism is a complex and multifaceted issue, and science and technology should be integrated with other approaches, such as community engagement, education, and policy initiatives, to achieve comprehensive results. Research and collaboration are essential to continuously refine and improve the effectiveness of these technological interventions in countering violent extremism. The government and civil society organizations can monitor online platforms and social media for radicalization and extremist content through various technological and scientific tools. Also, using machine learning and data analytics helps identify patterns and behaviors that could indicate potential threats to national security. Furthermore, science and technology can also be used for preventive measures, such as providing education and counter-narratives to extremist ideologies. Online programs and initiatives can be developed that use social media and other platforms to reach vulnerable

populations and offer a positive alternative to radicalization. The use of science and technology has been instrumental in the fight against violent extremism. Here are some ideal recommendations:

6.3.1 Social Media Monitoring

Social media is a key tool for extremist groups to spread their ideology, communicate and recruit new members. Government and law enforcement agencies should use social media monitoring tools to identify and track online extremist activities. This will lead to the arrest and prosecution of the individuals involved in the extremist activities. It is important to note that social media monitoring is just one component of a broader strategy to counter violent extremism. Combining it with proactive prevention measures, community engagement, and addressing root causes is necessary for an effective and holistic approach to tackling the complex issue of extremism.

6.3.2 Data Analytics

Government officials should use data analytics to identify patterns and trends in extremist activities. Data analytics help identify individuals involved in extremist activities and can be instrumental in identifying and tracking any financial transactions that fund extremist activities. Data analytics in the context of identifying extremist activities should be conducted within legal and ethical confines, with proper safeguards for privacy and civil liberties. The collection and analysis of data must adhere to appropriate legal frameworks and guidelines.

6.3.3 Biometrics Identification

The Government should invest in biometric identification systems to identify individuals involved in extremist activities. Biometrics refers to the unique physical or behavioral characteristics of individuals, such as fingerprints, facial features, and iris patterns, which can be captured and used for identification purposes. It's important to consider the ethical and legal aspects of biometric identification systems. Proper privacy safeguards and legal frameworks should be in place to ensure that the collection and use of biometric data are conducted within appropriate boundaries, protecting individual privacy and civil liberties. Biometric systems should be implemented with transparency, accountability, and oversight to mitigate any potential misuse or infringement on rights.

6.3.4 Surveillance Technology

The use of surveillance technology, including closed circuit television (CCTV) cameras, drones, and satellite imaging, can indeed play a role in tracking and monitoring extremist activities, potentially helping to disrupt potential attacks by extremist groups. The effectiveness of surveillance technology in countering extremist activities will depend on several factors, including the proper deployment of resources, data analysis capabilities, and adherence to privacy and legal considerations. Striking the right balance between security and privacy is crucial to ensure that surveillance measures are used responsibly and do not infringe upon individuals' rights. Additionally, surveillance technology should be accompanied by robust intelligence gathering, collaboration between relevant agencies, and proactive law enforcement efforts to effectively disrupt potential attacks by extremist groups.

6.3.5 Cyber Security Measures

The Government can use cyber security measures to protect critical infrastructure from cyber-attacks by extremist groups. These measures can prevent attacks on critical infrastructure and help identify individuals involved in cyber-attack activities. Implementing robust cyber security measures is crucial for safeguarding critical infrastructure, such as power grids, transportation systems, water supplies, and communication networks, from potential threats. Cyber security measures alone may not be sufficient. A comprehensive approach should involve a combination of technological solutions, policy frameworks, regulatory measures, international cooperation, and public-private partnerships to effectively protect critical infrastructure from cyber-attacks by extremist groups or any other malicious actors.

6.3.2 Utilizing Technological Innovations to Counter Violent Extremism

Meaningful development heavily relies on technology disruptions, and it is vital to empower communities to utilize existing technologies for government communication. Important steps to consider include implementing toll-free helplines, deploying surveillance cameras and drones for monitoring and intervention purposes, and utilizing social media platforms as effective channels for the government to share non-sensitive information with citizens. By incorporating toll-free numbers, communities can easily reach out to government agencies and authorities for reporting suspicious activities, seeking assistance, or providing information. This streamlined communication channel enhances the flow of information and enables prompt responses to potential security threats.

The installation of cameras in strategic locations can help monitor and deter criminal activities, including terrorist-related incidents. This technology aids in surveillance, providing valuable data for security agencies to analyze and respond to security challenges effectively. Drones offer a versatile tool for surveillance and intervention purposes. They can be employed to monitor remote areas, identify potential threats, and support rapid response efforts. Drones also have the capability to intercept and neutralize dangerous situations, ensuring the safety of both security forces and communities.

Social media platforms present an effective means for the government to disseminate information to citizens. By utilizing social media channels, the government can share updates, advisories, and non-sensitive information regarding security measures, community engagements, and counter-terrorism efforts. This facilitates transparency, community engagement, and builds trust between the government and citizens. Incorporating these technological advancements not only improves communication and surveillance capabilities but also empowers communities by involving them in the use of technology for security purposes. Ensuring communities have access to these technologies and receive adequate training and support is crucial to enable their effective utilization.

In conclusion, embracing technology disruptions such as toll-free numbers, cameras, drones, and social media platforms can greatly enhance community-government communication, surveillance capabilities, and information dissemination. By leveraging these technologies, the government can foster a safer environment, enable effective responses to security threats, and promote community participation in countering violent extremism.

6.3.3 Capacity Building in Government

To ensure a unified message on the role of communities in countering terrorism, it is essential for government officials to speak in harmony. Equipping officials with training on this topic can provide them with the necessary knowledge and comprehension of the value of collaboration and the significant contribution communities make as partners in the fight against terrorism. The training should concentrate on strategies that facilitate the active involvement of communities in countering violent extremism. By ensuring that government officials have a unified message and understanding, they can effectively communicate the importance of community engagement to other stakeholders and the general public. This consistent messaging helps build trust and fosters a sense of shared responsibility in countering terrorism.

The training should encompass various aspects, including the significance of community collaboration, effective communication techniques, cultural sensitivity, and understanding the unique dynamics of different communities. Government officials should be adequately equipped with the knowledge and skills necessary to engage with communities in a respectful manner. This includes actively listening to their concerns and perspectives, and collaboratively developing tailored strategies that effectively address local needs and challenges. Additionally, officials should be trained on recognizing and valuing the expertise, knowledge, and networks that exist within communities. They should understand the benefits of involving communities in intelligence gathering, early warning systems, and identifying individuals at risk of radicalization. This training should emphasize the importance of creating platforms for open dialogue and partnership between officials and community representatives.

By investing in training programs for government officials, the government can foster a more coordinated and effective approach in engaging communities in countering violent extremism. Equipped with the necessary skills and knowledge, officials can build strong relationships with communities, work collaboratively, and harness the collective efforts of all stakeholders in the fight against terrorism.

6.4 Areas of further research

It is imperative for government officials to possess the requisite knowledge and skills to engage with communities respectfully. This entails actively listening to their concerns and perspectives, and working together collaboratively to develop customized strategies that effectively tackle local needs and challenges. The research strived to establish the role of science and technology in CVE in Boni forest in Lamu County. The study examined the role of science and technology in countering violent extremism in Kenya, the successes and challenges in the use of science and technology in Boni forest and the key actors and frameworks. There is room for further on how technology can be used to mitigate and counter improvised explosive device menace that has become the adversaries' weapon of choice.

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APPENDICES

APPENDIX 1: RESEARCH CONSENT FORM

JOSEPH KAKU MUTUA

P O BOX 4627-01002
Thika, Kenya
Mobile No. 0722 482 705
October 2022

Dear Sir/Madam,

RE: RESEARCH QUESTIONNAIRE

My name is **Col Joseph Kaku Mutua**, a postgraduate student at the National Defence University, Kenya, National Defence College, Karen. I am undertaking a study titled: **Role of Science and Technology in Countering Violent Extremism: A Case Study of Kenya Defence Forces in Boni Forest Lamu County, Kenya** and required to collect data as part of academic research. Kindly spare a few minutes and fill out the questionnaire (Appendix III) to enable me collect data for this study.

(Please tick in the boxes provided as applicable and/or writing a brief follow-up statement in the space provided). All the information taken for this research is purely for academic purpose and will be treated as confidential..

Participants' Signed Consent.....

Date.....

APPENDIX II: KEY INFORMANT INTERVIEW GUIDES

Serial:

Instructions:

The purpose of this interview guide is to collect information from a wide range of respondents who have first-hand knowledge to the role of science and technology in countering violent extremism in Lamu County using the Kenya Defence Forces. It is requested that you give a small tick in the necessary boxes and follow with a small explanation that is accurate and concise information. Thank you for your interest to participate, fill in the guide by ticking appropriately and writing a brief explanation of your answer.

APPENDIX III: QUESTIONNAIRE

SECTION A: DEMOGRAPHIC INFORMATION

1. Gender? Male [] Female []

2. What is your Age?

Below 30 years [] 30-39 years [] 40-49years [] 50-59 years [] 60-69 years []

3. Education level?

Secondary [] Tertiary College [] Undergraduate [] Postgraduate [] Other (specify)

4. Name of your organization and department?

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.....

5. How long have you worked for this organization?

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6. What is your cadre (Rank)?

.....
.....

7. Your specialty?

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.....

8. Are you familiar with violent extremism?

Yes [] No []

9. Is there a linkage between science, technology and countering violent extremism?

Yes [] No []

SECTION B: THE ROLE OF SCIENCE AND TECHNOLOGY IN COUNTERING VIOLENT EXTREMISM IN KENYA

10. Has science and technology been used in countering violent extremism in Kenya?

Yes [] No [] Please explain your answer?

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11. What is the connection between science, technology and violent extremism?

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12. The ways science and technology tools utilized in countering violent extremism in Kenya?

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13. National approaches to utilizing science and technology for national countering violent extremism in Lamu County?

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SECTION C: THE SUCCESSES AND CHALLENGES OF COUNTERING VIOLENT EXTREMISM IN BONI FOREST, LAMU COUNTY

14. What are successes of countering violent extremism in Boni forest, Lamu County?

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15. What are challenges of countering violent extremism in Boni forest, Lamu County?

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16. What are the mitigation measures to the challenges of countering violent extremism in Boni forest, Lamu County?

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17. What are the success factors in the use of science and technology in the Lamu County Action plan for countering violent extremism?

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SECTION D: THE KEY ACTORS AND FRAMEWORKS IN COUNTERING VIOLENT EXTREMISM IN BONI FOREST, LAMU COUNTY

18. Who are the key actors in countering violent extremism in Boni forest, Lamu County?

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19. What are frameworks in countering violent extremism in Boni forest, Lamu County?

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20. What are the support infrastructures in the use of science and technology countering violent extremism and terrorism in Kenya?

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21. What are the support infrastructures in the use of science and technology countering violent extremism and terrorism in Kenya?

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22. List the support infrastructures of science and technology in countering violent extremism in Boni forest, Lamu County?

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23. What are the various mechanisms or steps employed in the effective implementation of science and technology in countering violent extremism in Boni forest, Lamu County?

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24. What are some of the technologies used in CVE in Boni forest, Lamu County?

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25. Your final remarks?

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Thank you for your taking time to answer these questions. I wish to reiterate the fact that all your answers will remain confidential.

APPENDIX 1V: LETTER OF DATA COLLECTION AUTHORIZATION FROM NDC

RESTRICTED

Telephone: 254-2-884036
Fax: 254-2-884036
E-mail: ndc@ndc.go.ke



National Defence College
Warai North Road
P.O Box 24381
Karen - Nairobi
Kenya

When replying please quote:

Ref: NDC/A/141

18 November 2022

TO WHOM IT MAY CONCERN

**FACILITATION FOR COL JOSEPH KAKU MUTUA ADMN No.
ND601/0003/2022**

The above Senior Officer is a course participant at the National Defence College and has been admitted for Masters of Arts in National Security and Strategy, under the National Defence University- Kenya Programme.

As part of academic requirements, Col Joseph Kaku MUTUA is required to undertake a research project in partial fulfilment of MA degree programme he is enrolled in. His approved research topic is **"Role of Science and Technology in Countering Violence Extremism; A Case Study of Kenya Defence Forces in Boni forest"**.

The purpose of this letter is to kindly request your office to facilitate the Officer as he conducts his research project.

Submitted for your kind consideration and facilitation.


MR F M MABEYA
Head of Programmes
for Commandant

APPENDIX V: RESEARCH PERMIT

 REPUBLIC OF KENYA	 NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION
Ref No: 161491	Date of Issue: 28/November/2022
RESEARCH LICENSE	
	
This is to Certify that Mr. Joe Kaku Mutua of National Defence College Kenya, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Lamu on the topic: ROLE OF SCIENCE AND TECHNOLOGY IN COUNTERING VIOLENT EXTREMISM: A CASE STUDY OF KENYA DEFENCE FORCES IN BONI FOREST for the period ending : 28/November/2023.	
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