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**South African Journal**
*of Military Science*

# South African Journal
## *of Military Science*

## Guest Editorial

Historically, geography has always been intertwined with the ambitions of empires because powerful nations have sought to expand their territories and influence. This drive for exploration, colonisation, and neo-colonisation shaped maps and understanding of the world, often reflecting the interest of those in power. As empires grew, the study of geography became a tool for asserting dominance, managing vast areas of land, and influencing both political and cultural exchanges (Barton & Irarrázaval, 2014). Santos (cited in De Toledo Junior, 2017) states that geography is a philosophy rather than a science, an ideology rather than a philosophy. He further explains that, in most cases, geography served as a propaganda instrument for these empires, and that new knowledge was created to facilitate the control and exploitation of diverse spaces and societies, along with some texts and maps to justify the emerging new hierarchies and rights (De Toledo Junior, 2017).

The military became imperial representatives in regions they controlled, and through scientific knowledge, as well as political power, they advanced the field of geography by means of cartographic representation. This is because the military was able to gather vital information about the territories they occupied. This not only shaped military strategies but also the extended understanding of these regions. The role of the military thus transcended enforcing control, and they became deeply integrated into the development of geographic knowledge and imperial ambitions.

Geography is described by Johnson *et al.* (2020) as an academic discipline that explores and encourages critical analysis of the organisation of the world. This includes the environment and patterns that exist, or which are imagined by humankind, and the interconnections that exist between the physical spaces as well as the nature of places and regions. According to Bustin (2011), contemporary geography focuses on the study of the arrangement and characteristics of the surface of the earth, the spatial distribution of various phenomena, the intertwined physical and human systems that influence the attributes of the earth, as well as the nature and essence of its constituent places and regions.

Both definitions of geography highlight the relationship between the physical and human systems that shape geographical features and the way they influence one another. Both definitions also emphasise the need for critical thinking and encourage a deep analysis into how the world is organised. There are, however, very prominent differences in these definitions of geography. While Johnson *et al.* (2020) describe geography as an exploration of the organisation of the world, including both the real environment and as it is imagined,

Bustin (2011) focuses on the arrangement of the characteristics of the surface of the earth, paying close attention to the attributes and features of landscapes.

Military geography is further defined by Palka *et al.* (2000, p. 113) as "the application of geographic information, tools, and techniques to military problems, focusing on a wide range of military scenarios from peacetime to wartime". Palka *et al.* (2000) also explain that military geography primarily examines how military operations and armed conflicts are influenced by terrain and the environment, with deep historical roots tied to the imperial ambitions and military needs that shaped the development of late-nineteenth-century Geography. Smit, Magagula and Flügel (2016) considered several definitions of military geography. The two most prominent of these definitions were by Jackman in 1962, and Collins in 1998. Jackman describes military geography as a branch of geography that utilises geographical principles and knowledge to address and solve military issues. Collins expands on this idea, explaining that military geography focuses on the influence of physical and cultural environments of political military policy, plans, strategies, and operations at both local and global scales. These definitions highlight that military geography applies geographic tools and knowledge to solve military challenges, focusing on how terrain and the environment influence military operations and conflicts. Military geography has historical roots imbedded in imperial and military needs (Bryan, 2016). This in turn has shaped modern geography to expand its role, emphasising its influence on military policy, strategy, and operations during times of peace and of war at various levels. Globally, military geography has faced challenges in evolving as an academic discipline (Palka, 2002).

Smit *et al*. (2016) agree with the above statement, stating that military geography as an academic discipline experienced a significant decline in the 1960s. This period was marked by a lack of interest in military geography at universities in the United States. This lack of interest may be attributed to the resistance against American involvement in the Vietnam War (Palka, 2002). During this time, there was growing social and political concern regarding the military, which led many scholars to distance themselves from the field (Palka, 2002). The application of military geography in activities perceived to be associated with military operations was increasingly viewed with scepticism by academics (Palka, 2002).

Military geography is still struggling to regain its former prominence. Although it is now offered at several universities around the world outside of military academies, it has yet to recover fully from the downturn of the 1960s (Smit *et al*., 2016). Another issue that continues to tarnish the appeal of military geography as an academic discipline is the view that geographical activities linked to military operations serve the interest of state propaganda or the projection of power that contributes to colonialist and neo-colonialist agendas (Gregory, Meusburger & Suarsana, 2015). Arguments such as these reinforce the perception of military geography as controversial in the political and ethical spheres, leading many scholars to question the legitimacy or relevance of the contemporary military geography discourse.

Recently, there has been a notable shift in the field of military geography, particularly

in terms of the inclusion of cultural and social geography perspectives in the discipline (Henrico, Smit & Henrico, 2021). This has allowed military geographers to move beyond the immediate and direct effects of military activities on landscapes and societies. This approach has expanded to include more nuanced and intricate interdisciplinary subject matter, such as social, cultural, geopolitical, economic, environmental, and historical dimensions of military action. The advancements of the fourth industrial revolution have also led to the development of new technologies, such as artificial intelligence, big data analytics, drones, automated systems and geospatial intelligence, which form part of military geographical information science (Moore *et al*., 2019). These innovations have enabled real time data collection, analysis, communication, and mapping in ways previously unimaginable. This has caused military geography to shift from its traditional obligation to integrate cyber capabilities, global communication networks, and sensor technology that influence strategic decision-making (Grant, 2014).

In *Military geographies* (2004), Rachel Woodward reports on developments in military geography as an academic discipline. She outlines five central ideas that shape discussions on spatial dimensions and manifestations of military events. The paragraphs below provide a summary of the five ideas as outlined by Woodward (2004).

The first idea depicts military geography as more than a discipline about war, because it encompasses all the factors that enable military activities and the wide-ranging influences of armed violence across space. This approach raises questions about whether acts of armed violence should take analytical precedence, and whether peace, as the opposite of war, should be prioritised in military geography. The second idea views militarism and militarisation not only as descriptive terms but also as analytical tools for understanding military geography. This is because these concepts contribute to the broader debate in critical military studies. The concepts further highlight the spatial dimension of military phenomena and the effects of military power within a process-oriented framework that challenges traditional boundaries between militaries and civilians. Woodward's (2004) third idea states that the diverse epistemologies, methodologies, and tools used in military geography research should enrich the field and open new areas for innovation. According to Smit (2024), this methodological pluralism encompasses qualitative and quantitative methods as they reflect the variety of approaches used by researchers both as detached observers, and as current and former military operatives.

The fourth idea by Woodward (2004) is that individual positionality is valuable in analysing military geographical phenomena because recognising one's own perspective and that of others offers important insights. Military geographers therefore need to emphasise different positions in time, space, and context that shape how we view the world. The final idea is that military geography needs to be studied at various scales – global, national, regional, and local – because the effects and understanding of military phenomena vary depending on these scales of analysis.

Woodward's (2004) exploration of military geography emphasises its broad scope, which extends beyond warfare and encompasses factors that enable military activities and their spatial consequences. She also highlights that, by analysing militarism, embracing

methodological diversity, considering positionality and scale, military geography reflects a multifaceted approach to understanding military phenomena. Woodward's work challenges the traditional boundaries and fosters innovative perspectives on the field of military geography.

Military geography has long been part of the curriculum in the international education sector; however, in South Africa, it remains a relatively underexplored field. In universities that include some military geography component in their curriculum, the study of geographical factors is often combined with military strategy and operations within the context of the unique history, social, and environmental landscape of the country concerned. At the time of writing, the South African Military Academy (SAMA), which is part of the Faculty of Military Sciences at Stellenbosch University, is the only tertiary institution that offers military geography at both undergraduate and postgraduate level in South Africa (Henrico *et al.,* 2021).

When SAMA was founded in 1950, geography was one of the first subjects included in the curriculum. Initially, it was referred to simply as 'Geography'. The course was however renamed 'Military Geography' in 1958. For more than thirty years, the subject primarily focused on cartography, physical geography, political geography, economic geography, as well as urban and regional geography (Jacobs, Van Rensburg & Smit, 2002). This period coincided with the era of colonisation and apartheid in South Africa, during which SAMA operated under the Union Defence Force (UDF) and later the South African Defence Force (SADF), with the University of Pretoria and later Stellenbosch University serving as the academic overseers (Visser, 2004). With the transition to democracy in 1994, the curriculum at SAMA underwent significant changes to incorporate geographic information systems (GIS), remote sensing, and environmental geography. This transition was driven by the needs of the newly formed South African National Defence Force (SANDF), which shifted from a Cold War-era defensive structure to a focus on peacekeeping and post-conflict reconstruction across Africa (Van der Merwe, Visser & Donaldson, 2016).

According to Smit *et al.*, (2016) military geography at SAMA has evolved from a primarily utilitarian view to a more environmentally conscious view, with emphasis on the relationship between humans and the environmental effects caused by military operations, and vice versa. This shift was driven by national environmental legislation that was introduced in 1998, as well as modern technological advancements. In addition to this evolution of the subject, at a faculty board meeting on 30 October 2024, it was explained that the structure of the geography department at SAMA will also change. The military geography department is now part of the School for Geospatial Studies and Information Systems (GEOSIS). With the Faculty of Military Science, Stellenbosch University (FMS, SU), which is currently undergoing a reconstruction of its schools, it is likely that the military geography department will relocate to a different school. In South Africa – as in the world – military geography is set to continue to evolve as it adapts to the increasing complexities of global security dynamics as well as rapid technological advancements (Henrico *et al.,* 2021). As these technologies continue to develop, military geography researchers need be able to use them to gain a comprehensive understanding of the geographic contexts and improve operational effectiveness.

In a 2016 article, Woodward explains that military geography has evolved in response to changes in military organisations, strategies, technology, and political relationships between the military and society. Woodward (2016) further states that, because of this change, military geography is dynamic but lacks many established traditions. She then presents four key dimensions in military geography research that can be regarded as traditions, namely spatiality, place, environment, and landscape. In the paragraphs below, the four key dimensions identified by Woodward (2016), which can be considered foundational traditions in military geography research.

Spatiality, as the first key dimension of military geography, addresses how **space** influences and is influenced by military operations. Traditionally, this focused on terrain, weather, and topology. Currently, the dimension of military geography includes aerial and marine dimensions, and refers to how military strategies are shaped across all environments. This includes geopolitical issues, such as territorial control and borders. Woodward (2016) argues that, with advancements in technology, warfare has evolved beyond merely physical warfare to beyond strategic control through mapping.

The second dimension is **place**, which emphasises how specific locations, such as military installations, play a role in broader social and economic networks. Military geography research in the place dimension focuses on connecting defence industries to national and global economic shifts. This is done to illustrate how military power extends beyond warfare to shape economic and industrial dynamics. Woodward (2016) says an example would be the way military bases influence local economies and social structures, as scholars would then study the civil–military relationships that emerge.

The third key dimension of military geography addresses the **environmental impact** of military activities, and the way environmentalism is framed for specific goals. Woodward (2016) emphasises that, during conflict, military operations cause severe ecological damage, with military geographers tending to study the long-term environmental effects of war. Beyond combat, military bases can however also have lasting environmental consequences, such as pollution, and/or – paradoxically – they may preserve certain ecosystems owing to restricted access.

The fourth and last key dimension of military geography identified by Woodward (2016) focuses on **military landscapes**. In this context, military geographers look at how both military and civilian actors interpret, represent, and engage with land. This is influenced by cultural geography, and addresses how landscapes are represented, especially at sites of memorialisation (battlefields, war memorials, and locations of wartime atrocities). Some researchers have also studied the sensory, emotional, and embodied experiences of military landscapes.

All six articles in this special issue align with these four key dimensions of military geography. The first article titled "Operation Observant Compass and the hunt for Joseph Kony: The use of special operations forces in humanitarian interventions", highlights the spatial dimension of military geography by exploring the use of special forces in remote, and often hostile, terrains. This article also incorporates the place dimension because military intervention efforts affect local sociopolitical and economic structures.

The second article titled "Encroachment challenges for the military: The case of Army Support Base Potchefstroom", reports on the environmental and spatial encroachment of military land by civilian activity, which is linked directly to the environmental impact and spatiality dimensions.

The third article, titled "Environmental security revisited", is closely linked to the environmental dimension of military geography, because it emphasises how military activity affects environmental security. This is tied to the ecological consequences of military operations and installations, as well as the role of military strategies in both preserving and damaging ecosystems. The fourth article "Where did you hear that? Narrative competition and societal instability in Burkina Faso", relates to the place and landscape dimension, and addresses the narrative surrounding military and political events shaping social structure and instability.

The fifth article "Illicit activities and border control in Ngoma, Namibia", is associated with the spatiality and place dimension, and focuses on how border control and military activity could shape the geopolitical landscape.

The last article, titled "Illegal fishing and maritime security: Historical and contemporary challenges in Namibia", is linked to both spatiality and environmental dimensions. Illegal fishing is a maritime security threat affecting territorial waters. The role of the military in securing maritime boundaries involves controlling space to prevent resource depletion and ensure national security.

These topics are crucial in military geography because they explore the spatial, place, environmental and landscape dimensions. The authors highlight how military operations could affect terrain, local economies, sociopolitical structures, and ecosystems by addressing environmental impacts, and examining the civil–military relationships and societal instability in conflict zones. The articles on border control and maritime security further reflect the complexities of geopolitical and environmental interactions.

A selection of book reviews by Anri Delport, Mashudu Mathoho, Barbara Schabowska, Raymond Steenkamp Fonseca, and Louis M. du Toit conclude this issue of *Scientia Militaria*.

As a guest editor, I would like to extend my sincere gratitude to everyone who contributed to this special issue. I am especially grateful to the reviewing and the language editing teams, whose careful work ensured the quality of this publication. I also want to express my deepest appreciation to Ms Anri Delport for inspiring me to take part in this project. Special thanks to Prof. Evert Kleynhans whose unwavering commitment and support were crucial for the success of this work. I also thank Dr Evert Jordaan for his invaluable guidance in helping me navigate through moments of confusion.

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*The Guest Editor*
*Babalwa Mtshawu* iD

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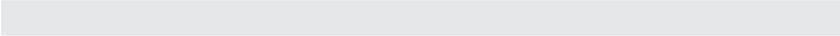
# Operation Observant Compass and the Hunt for Joseph Kony:
# The Use of Special Operations Forces in Humanitarian Interventions

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## Abstract

Operation Observant Compass, the United States 2011–2017 military intervention in Central Africa to defeat Joseph Kony's Lord's Resistance Army, offers several lessons for students and practitioners of military geography. As opposed to previous humanitarian interventions, Operation Observant Compass featured a notably small force of roughly 100 special operations forces and support personnel. This special operations forces element, deployed to the tri-border region between the Democratic Republic of the Congo, South Sudan, and the Central African Republic, confronted an elusive enemy force in an operational area roughly 200 000 square kilometres in size. Using a mixed-methods approach, the study, on which this this article is based, argued that Operation Observant Compass resulted in a net positive humanitarian outcome despite failing to kill or capture Kony.

First, using datasets on Lord's Resistance Army attacks and Operation Observant Compass troop positions, this article presents a geospatial analysis of potential deterrence effects created by the deployment of special operations forces, such as the United States Special Forces or "Green Berets". Second, using primary research conducted by the former psychological operations commander of Operation Observant Compass and the Ugandan People's Defence Force counterpart, analysis is presented on the efficacy of psychological operations campaigns that sought to weaken the Lord's Resistance Army through defections to regional security forces. The study also considered ancillary effects received through United States military medical personnel deployed in support of special operations forces, as well as a counterfactual argument in which United States forces were not directly deployed into the tri-border region.

This article contributes to the existing literature by expanding understanding of a little-studied chapter in foreign military deployments in sub-Saharan Africa, considering the nexus between use of special operations forces and humanitarian interventions. Methodologically, the use of a geographic information system argues for a consideration of geographical proximity between forces in creating a deterrent effect in "low-intensity" or irregular conflicts.

## Introduction

Operation Observant Compass (OOC), the name given to the United States (US) direct military intervention in Central Africa to defeat Joseph Kony's Lord's Resistance Army (LRA) between 2011 and 2017, represents a unique case in American military history for several reasons. First, amidst ongoing combat operations at the time in Iraq, Afghanistan, and elsewhere, the deployment of approximately 100 special operations forces (SOF) and support personnel for a distinctly separate mission represents a rare use of military force for an objective that some argued was not directly in support of US national security (Arieff & Ploch, 2012:15–16). While the Obama administration argued that assisting the US regional allies in the pursuit of Joseph Kony and the LRA was indeed in line with the National Security Strategy, it was a noted departure from what at the time was the dominant threat of the "War on Terror" (Arieff & Ploch, 2012:16). Additionally, the small number of US personnel deployed represents a key difference from previous humanitarian interventions.

US Lawmakers have long questioned the utility of deploying small numbers of troops to remote parts of the African continent, from the aftermath of Operation Gothic Serpent's "Black Hawk Down" incident (Hirsch, 2011) to the more recent Tongo Tongo ambush in Niger that left four US SOF personnel dead (VOA News, 2017). On the other hand, given the well-studied struggle to generate political will for third-party military humanitarian interventions, understanding small-scale deployments, such as OOC, could offer lessons for potential responses to future crises (MacFarlane, Thielking & Weiss, 2004:977–978).

The findings of the study reported on in this article argue that, despite the incredibly small size of the intervention force, OOC indeed had a positive humanitarian outcome. The intervention succeeded in improving the humanitarian situation despite the failure to achieve the primary objective of capturing or killing Joseph Kony as a result of –

- The deterrent effect of American occupation of remote population centres;
- The localised provision of medical attention by support personnel; and
- The American-led psychological operations (PsyOp) campaign that contributed to an increased defection of LRA fighters and leaders.

This article consists of four sections. First, a brief historical overview provides context on Joseph Kony and the rise and resilience of the LRA, as well as the political factors that led President Obama to authorise the deployment of 100 personnel to aid Ugandan forces. Second, I discuss the methodology and sources used for assessing the net humanitarian outcome of OOC, including datasets on LRA operations, civilian deaths, and US military operations. Third, the main findings as previously discussed are presented, including a counterfactual example of the outcome if the US had not deployed forces. This counterfactual African Union-led operation, I argue, would likely have led to a short-term decrease in LRA attacks with the potential for a renewed campaign of LRA

retribution. The article concludes with a discussion of the lessons learned from OOC, including implications for future use of SOF in humanitarian interventions as well as for ongoing small-scale SOF deployments across sub-Saharan Africa.

While acknowledging concern regarding potential bias due to the reliance on US military sources, I believe the unique access I had to first-hand accounts from key participants in OOC provides invaluable insight that complements the existing data. These first-hand interviews with US SOF personnel and participants in the operation offer a comprehensive and balanced perspective, which would have been difficult to obtain from secondary sources alone. Additionally, I have taken care to incorporate independent data from non-governmental organisations (NGOs), including Invisible Children's Crisis Tracker and Armed Conflict Location and Event Data (ACLED), ensuring that the analysis reflects a broader range of perspectives beyond those of US military personnel. This integration of multiple sources strengthened the objectivity of the findings, while the first-hand accounts provide critical context that would otherwise be unavailable.

## Historical Overview

The roots of Joseph Kony and the origins of the LRA lie with the Acholi people of Northern Uganda and their relationship to the brutal regime of Idi Amin. Amin, who ruled Uganda from 1971 until his 1979 defeat at the hands of former president Milton Obote (who had himself been deposed by Amin in 1971), had incorporated many Acholi into his security apparatus, providing various positions of power to them and other northern ethnic groups (Easter & Hatangimana, 2017:7–10). This trend of northern prevalence in Ugandan security forces continued through Obote's second regime, lasting from 1979 until his second ousting in 1985, this time by the Acholi General Tito Okello. During this same time, the country was confronted with what is now known as the Ugandan Bush War, which lasted from 1981 to 1986 and ended with Yoweri Museveni consolidating political control and installing his own National Resistance Movement (NRM) as the ruling faction, comprising primarily Ugandans from the southern provinces (Easter & Hatangimana, 2017:7). Following Museveni's victory in 1986, large factions of the Acholi formed the Ugandan People's Democratic Army (UPDA) as a response to aggression by Museveni's National Resistance Army (NRA). Exploiting deeply held religious beliefs, Joseph Kony emerged as a leader within the UPDA and formed his own faction of loyal fighters, eventually rising to prominence as the head of an Acholi insurgency that aimed to deny NRM control over northern Uganda. Kony's forces would continue conduct raids against Ugandan government forces, make and break alliances with other rebel factions, and shift names until settling on Lord's Resistance Army (LRA) in 1993 (Day, 2019:971–973).

The next phase of prolonged LRA violence would last for over a decade, when Kony justified using Sudanese aims against Museveni to gain the support of Khartoum. Forced to withdraw from northern Uganda by increased attacks from the Ugandan People's Defence Forces (UPDF), the LRA utilised safe areas across the border in southern Sudan, and active support from the Sudanese Armed Forces (SAF) to continue its operations (Lewis, 2020:69–80). By this time, the operations consisted largely of cross-border raids

into Acholi population centres, where the LRA would stage brutal attacks on civilians, abducting children to bolster their ranks, and intimidate civil society actors who had chosen to cooperate with the Museveni regime. This campaign would continue until 2005, when diplomatic improvements between Sudan and Uganda ended support by Khartoum for Kony and effectively removed the Sudanese safe havens, making attacks into Acholi regions of Uganda nearly impossible (Day, 2019:975–976).

From 2005 onwards, the LRA has been largely reduced to what Day (2019:971) calls 'roving banditry'. A lack of official foreign support, reliable sources of income or resources, and repeated attempts by the UPDF and other forces to capture or kill Kony led the LRA to rely on the under-governed and densely vegetated regions of the Democratic Republic of Congo (DRC), the Central African Republic (CAR), and South Sudan to survive and evade capture. While the numbers of the LRA (estimated at around 250–500 core fighters) and operations declined, it still posed a threat to civilian populations in affected areas. By the 2010s, millions of people had been displaced and close to 60 000 had been abducted for use as fighters, sex slaves, or forced labour (International Displacement Monitoring Centre [IDMC], 2013:4–6).

Counter-LRA operations by the UPDF continued with increased intensity, culminating in Operation Lightning Thunder (OLT) in late 2008. The UPDF, supported by American intelligence and logistical support and in coordination with Sudanese and Congolese forces, launched a major offensive with the aim of capturing Kony. Although the operation succeeded in destroying multiple LRA bases in the tri-border area between the DRC, the CAR, and South Sudan, Kony and his forces were able to evade capture again, responding with reprisal attacks on villages in north-eastern DRC, causing an estimated 500–1 000 casualties (Forest, 2014:19–21).
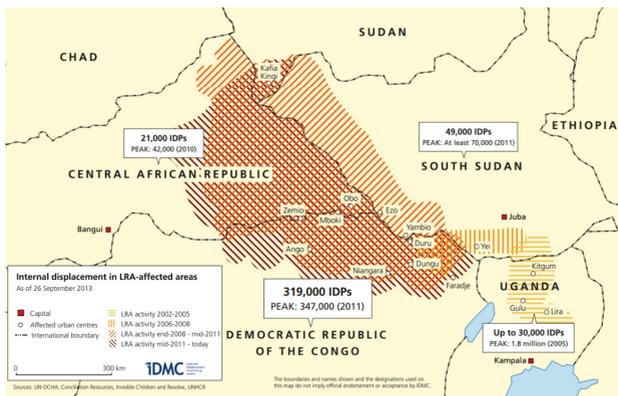


*Figure 1: Map of LRA activity and internally displaced people (IDPs) from 2002–2013 (IDMC) Source: International Displacement Monitoring Centre*

Following the mixed results of OLT, increased international awareness and political pressure grew in Washington. Several NGOs, led by the group Invisible Children, lobbied

the White House to increase its role in the effort to capture Kony and permanently disband the LRA, motivated by a humanitarian objective of ending the group's reign of violence (Easter & Hatangimana, 2017:36–38). The lobbying campaign succeeded, and in 2010, President Obama signed the Lord's Resistance Army Disarmament and Northern Uganda Recovery Act. In October 2011, Obama further authorised the deployment of 100 personnel (later, in 2014, expanded to 250) under the auspices of OOC with the stated goal of more directly training and assisting the UPDF in their counter-LRA efforts (Demmers & Gould, 2018:371).

## Methodology and Sources

In order to conduct an accurate analysis of the humanitarian impact of OOC, a number of both quantitative and qualitative sources have been assembled from a variety of communities, namely relevant NGOs, academia, and military organisations directly involved in the operation.

In the current research, Quantitatively, analysis was driven by –

- data gathered by NGOs, such as Invisible Children, whose Crisis Tracker has recorded LRA activity in Uganda, South Sudan, the DRC, and the CAR;
- additional data on LRA activity provided by the ACLED project (see Raleigh, Linke, Hegre & Karlsen, 2010) and the Internal Displacement Monitoring Centre (IDMC, n.d.);
- metrics derived from ACLED, which included numbers of deaths, dates, and locations of the corresponding events, and associated actors;
- metrics gathered by Invisible Children, which included numbers and locations of LRA attacks and abductions since 2008 (Invisible Children, n.d.); and
- IDMC datasets, which included total numbers of IDPs and new displacements in the affected areas from 2009 to 2017 after the withdrawal of US forces.

In terms of location-specific data, geospatial proximity and temporal correlation analysis was conducted using previous military reporting on the specific locations of SOF positions. Analysis was done using ArcGIS. By examining the temporal and geographical patterns of LRA activity before, during, and after OOC, I measured the correlation between the operations of the group and the American intervention.

Given the organisational devolution of the LRA from a politically motivated insurgent group to an isolated group of bandits, new recruits were gained through attacks on villages and abducting civilians to be forced into service. Measuring abductions in addition to attacks provided further insight into the LRA response to attrition caused through military casualties or fighters defecting.

Additionally, data gathered on LRA defections by Major Jonathan Easter, the former US Psychological Operations (PsyOp) commander of OCC, and Major Benon Hatangimana of the UPDF shed light on the efficacy of American SOF efforts to disrupt the ranks of the LRA (Easter & Hatangimana, 2017:69–82). Due to the long-practiced LRA tactic of abducting civilians for forced service, defections can be viewed as another potentially

positive humanitarian outcome of OOC or other counter-LRA operations, as civilians can return to their homes for a resumption of their normal lives after being forced into combat by their kidnappers. As Khasalamwa-Mwandha (2019) however notes, for these former soldiers, the reintroduction into Ugandan society has been noted as a difficult process. Access to data from Special Operations Command Africa (SOCAF) (the US military organisation charged with conducting special operations on the continent) by both Easter and Hatangimana (2017) and Easter (2019) also served as a valuable source of data on the intervening force. Using the statistics of PsyOp missions conducted (such as pamphlet drops or loudspeaker flights over LRA territory) and numbers of LRA fighters who defected to African Union-led Regional Task Force (AU-RTF) forces, this data further support a potential causation between US SOF and a decrease in LRA effectiveness.

Qualitative content analysis of historical records, including interviews with OOC participants and LRA defectors, provided evidence on the causal relationship between American military involvement and LRA activity. In particular, military academic research on the composition and disposition of the US SOF deployed to support the operation shed light on from where counter-LRA efforts were supported. Additionally, research by scholars and experts on conflict studies supplemented the analysis of shifts in LRA activity and the unintended consequences of OOC. By conducting analysis of the entire affected region, the current study also sought to determine whether the American intervention prevented loss of life or simply displaced the violence. Finally, an interview with a Civil Affairs (CA) officer who had served in Uganda as part of OOC shed insight into the role of additional SOF units deployed, as well as the potential for expanded coordination between military and civilian entities.

## Findings

Before addressing the outcome of OOC, it is important to examine the decline in LRA attacks that occurred prior to the arrival of American personnel. Using data recorded by Invisible Children's LRA Crisis Tracker, it became clear that LRA activity (classified as attacks, abductions, and civilians killed) went through a surge from 2008 to mid-2010, as seen in Figure 2 below.
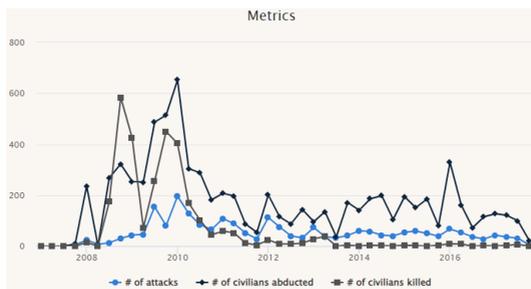


*Figure 2: LRA activity from 2007–2017 (Invisible Children)*
*Source: Invisible Children (2022).*

As noted in the historical overview, many of these attacks were the result of LRA retribution for OLT in late 2008. The spike in abductions through 2009 has been attributed largely to the post-Lighting Thunder splintering of the LRA into smaller bands, which, in turn, spread through the region and kidnapped more civilians to replenish the ranks of child soldiers, forced labourers, and sex slaves (Rice, 2009). The decline in activity beginning in 2010 (more than a year before the authorisation and deployment of US personnel) was such that, by 2011, only 170 deaths across the affected area had been attributed to the LRA (Branch, 2012:161–162). While the immediate effects of OLT were criticised as leading to the spike in LRA attacks and deaths of civilians, its fracture of the group into smaller (and therefore more difficult to track) bands is a likely reason behind the longer-term decline in activity. With this increased autonomy, LRA splinter groups have been observed to pursue tactics more consistent with petty gangs, resorting to looting, illicit trades, and other subsistence activities, as opposed to an organised insurgent group with unified political aims (Day, 2019:978). Nevertheless, despite the decline, regional powers, such as Uganda along with the United States and the United Nations, continued to frame the LRA as a threat to civilians and to see continued military pressure as the only viable way of capturing Kony and finally dismantling the group (Branch, 2012:169–171).

Following the authorisation by the White House, US Africa Command (AFRICOM) assembled what would be known as the "AFRICOM Counter-LRA Control Element" (ACCE), the task force charged with executing OOC. The ACCE was headquartered in Entebbe, Uganda for its logistical advantage in coordinating the influx of military aid. Additional outposts, referred to as "Combined Operations Fusion Centres" (COFCs) were also established in Uganda, the CAR, the DRC, and South Sudan. These COFCs served as additional logistics hubs (with valuable airstrips in an area otherwise lacking in infrastructure) and as centres of coordination between US forces and the AU-RTF. This was authorised shortly after the announcement of OOC, and comprised troops from Uganda (the primary force provider), South Sudan, the CAR, and the DRC (Easter & Hatangimana, 2017:35–38). As the mission grew, the need for additional troops and support led to the eventual delegation of the mission entirely to SOCAF, with the ACCE being redesignated as Special Operations Command Forward – Central Africa (SOCFWD-CA) (Easter & Hatangimana, 2017:39–41).

From the COFCs, elements of SOCFWD-CA supported the four objectives of the operation:

- Increase the protection of civilians;
- Apprehend or remove Joseph Kony and his senior commanders from the battlefield;
- Promote the defection, disarmament, demobilisation, and reintegration of remaining LRA fighters; and
- Increase humanitarian access and provide continued relief to affected communities (White House Office of the Press Secretary, 2012).

## Deterrence Effect of Green Berets

These objectives were primarily pursued through local training and intelligence sharing conducted by Operational Detachment Alphas (ODAs) from the 10th Special Forces Group, which aimed to improve the capabilities of AU-RTF forces. Despite the assistance provided by the ODAs, the AU-RTF was however still unable to kill or capture Kony or make major progress towards rooting out the LRA. Analysis from scholars at the Joint Special Operations University points to many tactical-level frictions between the ODAs and AU-RTF partners, including language and cultural barriers, and a lack of understanding of AU-RTF operating procedures or needs. The same analysis however noted the deterrent effect that the deployment of the ODAs to remote COFCs had, as indicated by civilians' reports of intense LRA questioning over US troop locations (Forest, 2014:49–52).

The deterrent effect of US presence at the COFCs is seen in data collected by ACLED and visualised in Figure 3 and Table 1. Figure 3 shows the location of the COFCs within the SOCFWD-CA area of operations, while Table 1 presents data on LRA attacks before, during, and after OOC. Using a one-year span before and after the 14 October 2011 troop authorisation of the White House, removed the surge in LRA retribution attacks following OLT conclusion in March 2009. It further controlled for any marked improvements in AU-RTF forces as a result of SOCFWD-CA (given the initial logistical challenges of establishing the COFCs and forming new partnerships, major operational improvements from American training were unlikely within the first year). From the data, we see that, while there was a 32% decrease in annual LRA acts of violence against civilians across the entire region, areas within a 30-mile radius (i.e. 48-kilometre radius) of the COFCs saw a 63% decrease during the same period.[1]

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[1] The distance of 30 miles (48 kilometres) was chosen based on an average two-day walking distance, assuming an LRA fighter would be capable of 12 hours of daily movement. The distance rate was determined using the American *Army Techniques Publication 3-90.98, Jungle Operations* (Washington, D.C.: Department of the Army, 2020:156).

Note: Circles represent 48-kilometre radius around each outpost, size relative to the number of fatalities, and colour representative of year.

Examining the potential deterrent at each COFC, however, provides additional detail. While 2011–2012 saw a major decrease in LRA activity near Dungu, DRC, the COFCs in the CAR at Obo and Djemah saw increases in LRA activity. It is important to note that these increases were small in number: Obo saw an increase from two attacks to three, and Djemah only experienced two attacks during the first year of OOC. Adding weight to the argument of the deterrent effect of the ODAs is the fact that all COFCs had a similar mix of UPDF or AU-RTF forces. The expeditionary deployment of UPDF troops outside Uganda has been noted both for the relatively capable nature of the forces as well as the tensions exacerbated with other AU-RTF partners whose territory the UPDF occupied (Forest, 2014:28). While the COFCs themselves served as important military nodes for AU-RTF troops to launch operations from – and might themselves eventually have served as deterrents – the introduction of US SOF to these locations seems to have affected LRA decision-making of where to launch raids. Additionally, the outposts in the CAR had already been hosting 1 500 UPDF troops. Analysts, such as Shepherd, Davis and Jowell (2015), have pointed out that, in reality the authorisation of the AU-RTF was in some cases a "re-hatting" of already deployed troops. The levels of LRA violence in these areas were therefore probably not affected by the presence of AU member troops.

Table 1: Yearly LRA attacks within 48-kilometre radius of COFCs

|  | Pre-OOC deployment | | OOC average | Operation Observant Compass | | | | | |
|---|---|---|---|---|---|---|---|---|---|
|  | 09–10 | 10–11 |  | 11–12 | 12–13 | 13–14 | 14–15 | 15–16 | 16–17 |
| Djemah | 3 | 0 | 1.5 | 2 | 0 | 2 | 0 | 0 | 5 |
| Arua | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dungu | 26 | 16 | 4.33 | 2 | 1 | 4 | 7 | 6 | 6 |
| Nzara | 0 | 0 | 0.83 | 0 | 3 | 0 | 1 | 0 | 1 |
| Obo | 14 | 2 | 4.33 | 3 | 1 | 11 | 3 | 6 | 2 |
| COFC Total | 43 | 19 | 11 | 7 | 5 | 17 | 11 | 12 | 14 |
| Annual % change COFC | N/A | -56% | 23% | -63% | -29% | 240% | -35% | 9% | 17% |
| Attacks outside COFC | 237 | 49 | 46.16 | 39 | 17 | 77 | 34 | 37 | 73 |
| % LRA within COFC | 15% | 28% | 19% | 15% | 23% | 18% | 24% | 24% | 16% |
| Total attacks | 280 | 68 | 57.16 | 46 | 22 | 94 | 45 | 49 | 87 |
| Annual % change attacks |  | -76% | 46% | -32% | -52% | 327% | -52% | 9% | 78% |

Source: Exported from the ACLED data export tool

These trends continued throughout the duration of OOC. As seen in Table 1, COFCs had a stronger decline in LRA violence year-over-year than areas outside the 48-kilometre radius "security bubble". Even in years where LRA attacks saw a rise, the COFCs had a dampening effect that led to a much smaller increase. For instance, while 2013–2014 saw a 327% increase in reported LRA attacks, areas inside the security area of the COFCs suffered a 240% increase. Additionally, 2016–2017, the final year of the American deployment, saw a 78% increase in attacks across the overall area of operations, with only a 17% increase in areas within 48 kilometres of COFCs.

## PsyOp Campaigns

Despite the efforts of SOCFWD-CA and the AU-RTF to capture Joseph Kony and to protect local civilians, LRA attacks continued at a low level throughout the six years of OOC (2011–2017). While annual deaths did sharply decline (from 127 in 2011 to a low of 22 in 2014, and an average of 45 deaths per year by 2017), LRA attacks and abductions did not see a significant drop during the time of US troop presence. Abductions, in particular, saw a rise from 2014 to a peak in 2016, when 792 civilians were reported as kidnapped or abducted by the LRA for service as soldiers, forced labour, or sex slavery (Invisible Children, n.d.). This divergence was probably a result of the LRA prioritising reconstitution operations as opposed to punitive raids. Such a need for rebuilding its ranks could be attributed to the decline in LRA troop numbers, which was at least partially a result of the OOC defection campaign. The ACCE (and later SOCFWD-CA) implemented a robust defection campaign through its PsyOp specialists. This campaign was organised under five lines of effort:

- Broad messaging to LRA fighters to promote defection;
- Broad messaging to surrounding civilian populations to promote the peaceful acceptance of LRA defectors;
- Tailored messaging to promote internal divisions within the LRA;
- Targeted messaging to promote the defection or surrender of specific members of the LRA; and
- The development of improved dissemination channels and methods appropriate for the target audiences and the operational environment (Easter, 2019:35–36)

The execution of these lines of effort involved notable levels of coordination between PsyOp teams, the AU-RTF, UN agencies, and NGOs, such as Invisible Children and the Enough Project. While previous UPDF operations also featured attempts at encouraging LRA defection, this renewed effort during OOC represented a much stronger emphasis on both interagency collaboration and information operations. Interviews with veterans of the operation reflected the collaborative process that involved such partners in designing leaflets, audio messages, and specific messaging campaigns to resource and execute (Easter & Hatangimana, 2017:42–43). However, restrictions on troop numbers and a lack of SOF CA specialists resulted in these PsyOp teams dividing their efforts between the defection campaign and a continuing role of interagency liaison. During interviews with the author, some participants (e.g. Anonymous SOF CA officer, 2023; Easter, 2022) indicated this double tasking ("dual-hatting") as a constraint. Participants argued that

a SOF CA component would have both freed PsyOp teams to focus on their primary mission. It would also have increased the ability of SOCFWD-CA greatly to conduct interagency coordination and support NGOs addressing humanitarian needs in the area of operations. SOCFWD-CA eventually did incorporate SOF CA into its operations, improving the awareness of the command of NGO efforts and local tribal dynamics that affected the OOC area of responsibility.

Messaging was conducted through various means, such as leaflets dropped from aircraft, audio recordings played from helicopter-borne loudspeakers, and shortwave radio broadcasts. The logistical hurdle in conducting these operations was mitigated through contracted civilian aircraft, such as Cessna 208s (Tracy, 2021:41). The coordination between American special forces and these civilian air services was seen as a major boost to the movement of troops and material into the area of operations. These SOF elements brought considerable experience in "non-standard logistics", conducting rapid assessments of transportation infrastructure and managing the complex terrain in a way that allowed for OOC to be efficiently sustained (Tangeman & Lindsley, 2013:28-31).

Eventually, SOCFWD-CA also improved radio infrastructure by building several radio stations. Improved shortwave radio reception allowed for an increased broadcast range in LRA-dominated areas. Also critical to these efforts were the coordination and establishment of eight UN-run Safe Reporting Sites (SRS) and five locally run Community Defection Centres (CDCs). Locations of both SRS and CDC were broadcast and publicised via leaflet drops, to ease the process and facilitate the reintegration of LRA defectors (Tracy, 2021:36–37). Figure 5, compiled by military researchers, provides spatial awareness of the SRS and CDC locations in relation to COFCs.

Utilising the data compiled by Easter and Hatangimana from SOCAF, the humanitarian effects of the robust PsyOp campaign can be understood. However, as the officers noted, limitations exist within the data based on operational constraints and local nuance, for instance, distinctions between LRA "defectors" and "returnees" were difficult to assess. It was also not easy to determine how long individuals had to have been with the LRA to qualify as a combatant who could then defect. Additionally, analysing trends across a variety of reporting sources presented challenges to create a clear picture of any causal relationship between PsyOp efforts and LRA defection rates (Easter & Hatangimana, 2017:53–58).
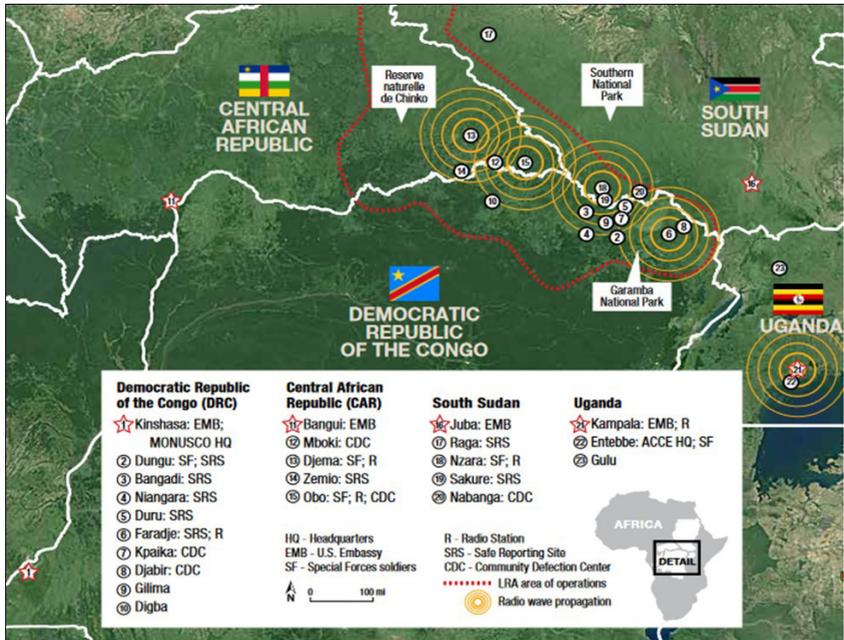
*Figure 5: Location of SRSs, CDCs, and radio stations utilised by SOCFWD-CA*
*Source: Map obtained from Tracy (2021:36)*

Still, even taking these limitations into account, the analysis provided several insights into the humanitarian outcome of the PsyOp efforts of SOCFWD-CA. At base level, the data gathered from SOCAF and NGOs showed a net decrease in the number of civilian captives over the 77 months of American involvement (3 482 returnees and 1 801 abductions) when compared with pre-OOC data. Easter and Hatangimana's (2017:62–63) analysis shows a positive correlation between monthly totals of LRA defectors and the influence of leaflet drops, radio broadcasts, conducted via airborne loudspeakers throughout the area of operations. Data on the PsyOp messaging source came from interviews conducted with LRA defectors at the SRS or CDC locations. The authors contend that the data suggest:

> [T]hese media were effective in promoting defection, or at least in targeting populations capable of escape […] our data analysis indicates that OOC was at least partially successful with an increase in the defection of LRA fighters and a decrease in civilian casualties (Easter & Hatangimana, 2017:63–65).

Interviews with LRA defectors provided additional evidence towards the efficacy of the campaign, with multiple anecdotal accounts testifying to the influence that collecting leaflets or hearing helicopter-borne messages had on their decision to flee the LRA

(Easter, 2019:36). The possible effects of the PsyOp campaign are also supported by related research on LRA defectors. An interview during a 2017 study (see Riley, Pearson, Schneider & Stimeling, 2017), with 85 former LRA members indicated that the greatest common factor (62,4%) expressed for leaving was that life in the group had become too hard. While this represents more of a push from the LRA than a pull to the SRS or CDC sites, additional questions showed that between 32% and 45% of respondents feared some form of retribution from the UPDF after surrendering (Riley *et al.*, 2017:88–91). These fears were understood by SOCFWD-CA and incorporated into a diverse array of PsyOp products. Numerous examples of leaflets exist that feature former LRA members enjoying life away from the LRA and without worry of punishment from the UPDF (Easter & Hatangimana, 2017:89–98). More definitive evidence is available on the effect that messaging had on defection of LRA leadership, the fourth line of effort of the campaign. After conducting intensive research on known LRA leaders, American PsyOp specialists developed messages using individual family histories, known attributes or motivations. Such personalised messaging led to the defection of several high-profile leaders, including Joseph Kony's communications chief, who specifically credited the contents of the message with driving him to abandon the LRA (Easter, 2019:36).

In total, it is estimated that, from 2012 to the completion of the mission in 2017, the number of LRA fighters declined from roughly 500 to fewer than one hundred (Tracy, 2021:41–43). While the "push" of poor living conditions for LRA fighters clearly played a role, the "pull" of the SOCFWD-CA defection campaign makes a compelling case for the positive humanitarian outcome of OOC, given the decrease in the number of active fighters harming civilians as well as the influence such defections had on returnees' new lives after reintegration. This return to society was not without challenges. Macdonald and Kerali (2021:766–790) documented the continued struggle of returning LRA defectors reintegrating into civil society. Interviews with OOC participants (see Easter, 2022) also considered the demobilisation, disarmament, and reintegration (DDR) efforts an afterthought, pointing to evidence of former LRA fighters being employed as mercenaries by armed groups in South Sudan. Still, previously cited interviews with former LRA combatants suggested that the change in lifestyle was positive. Assessing the causal relationship between the influence of the PsyOp efforts and LRA defections remains difficult. Qualitative interviews (e.g. Anonymous SOF CA officer, 2023) however support the idea that the American expertise in crafting and delivering messages played a significant role in LRA attrition. The interviewees also applauded the United States Agency for International Development (USAID) for sponsored construction of radio stations that expanded a community early-warning system.

As an unintended consequence, SOCFWD-CA also benefited from the deployment of a Special Operations Resuscitation Team (SORT) from the 528th Sustainment Brigade, the dedicated special operations support unit of the US Army. Typically comprising eight medical specialists, the SORTs deployed were limited to five due to the strict cap on force size. Due to the vast size of the SOCFWD-CA area of operations and the lack of medical infrastructure, SOCAF planners recognised the need for increased medical treatment capabilities closer to the ODAs and AU-RTF troops. The COFC at Nzara, South Sudan was identified as an ideal location for the SORT in order to provide the most centralised

"Role-2" medical coverage to US or AU-RTF troops (Howard, 2018:46–50). While the deployment of the SORT to Nzara was designed to improve the survivability of the ODAs and AU-RTF troops operating across the region, it also had a humanitarian outcome within the immediate area. Due to a lack of casualties sustained during operations, SORT members regularly trained AU-RTF forces at the COFC in Nzara, as well as civilian medical staff at the local hospital. SORT members interviewed after multiple tours of OOC reported an observed increase in the medical capabilities of both allied security forces and the local medical staff in Nzara. Additionally, many local civilians (including both LRA defectors and unrelated civilian injuries) were treated by SORT members, with 298 patients being seen during one six-month deployment (Howard, 2018:53–55). SOF CA medics were also deployed to Nzara in what one interviewee (Anonymous SOF CA officer, 2023) called 'probably the most humanitarian-focused mission of my team'.

Based on the lack of medical equipment and personnel in the area before the establishment of the Nzara COFC, the deployment of the SORT and SOF CA, medical personnel had a small but notable humanitarian outcome, advancing the OOC goals of providing continued relief to LRA-affected areas.

## Other Causal Factors for LRA Decline

Before concluding on a potential causal relationship between the LRA decline and US intervention, other factors have to be considered. One possible explanation could be local weather patterns. The effects of abnormal rainfall have been shown to have some effect in generating new communal conflicts within sub-Saharan Africa, especially in dry years, as added stress on agriculture strains social systems and can spark new disputes (Fjelde & Von Uexkull, 2012:449–452). The case of the LRA is however likely to be different from such findings, as opposed to a sedentary population reliant on weather for agriculture. For years, the LRA had been acting as a roving gang of bandits, relying on raids for resupply. Similar work, specifically on the LRA and UPDF from 1997–2011 within Uganda, has made a compelling case for the dampening effect that precipitation has, arguing that such weather not only prevents military action on that specific day but also creates added pressure to execute weather-delayed operations once conditions improve (Carter & Veale, 2015:385–386). Given annual rainfall patterns remain largely the same, such factors would however probably not be able to explain changes in LRA attacks year over year.

An additional factor to be considered is the personal health of Joseph Kony. Given the small number of fighters thought to be active in the LRA, and Kony's charisma and mystic style of quasi-religious leadership, one might expect that illnesses would prevent Kony from directing attacks or applying pressure on subordinates to carry out raids. Historical examples of leader illnesses affecting military operational tempo include George Washington's struggles with smallpox during the Revolutionary War (Becker, 2004:381–430) and Adolf Hitler's argued struggle with Parkinson's disease (Gupta, Kim, Agarwal, Lieber & Monaco, 2015: 1447–1452). Searches for unique reporting identified two instances when defectors and local defence officials indicated knowledge of Kony being afflicted by various illnesses by late 2013 and again by mid-2015 (Reuters, 2013;

Robie, 2015). Using these reports, I created dummy variables of *Sick* and *Healthy,* set for seven-month windows around the supposed time of Kony falling ill (three months before, the month of publication, and three months after). Again, regression analysis of these variables and the same ACLED data showed no significant relationship between potential times of illness and the level of LRA attacks in the region. Again, a lack of reliable information regarding Kony's health limits the true usefulness of this new proposed method for this case study. Figure 8 below summarises Joseph Kony's health dummy variable, temporally aligned with local reporting of illnesses affecting the LRA leader's ability to direct operations.

| Reported Kony illness | |
|---|---|
| Multiple R | 0.088228 |
| R Square | 0.007784 |
| Adjusted R Square | -0.01651 |
| Standard Error | 5.475317 |
| Observations | 84 |

Figure 8. Model of LRA attacks based on Joseph Kony's health
Source: Author's own compilation

## *Counterfactual – AU-RTF goes it alone?*

With these findings now considered, a counterfactual argument should also be presented, namely would the UPDF and the other AU-RTF members have had the same effect on the humanitarian situation in the tri-border region if the United States had not committed its small contingent of SOF and support personnel?

The best source of information for what such an operation would look like is the previous attempt by the UPDF to kill or capture Kony, Operation Lightning Thunder (OLT). As mentioned, at the time, this offensive involved thousands of Ugandan troops as the only military in the affected region that could conduct sustained operations. Many observers noted not only the military failure to kill Kony but also the heavy-handedness of the UPDF that caused the displacement of many civilians throughout the area of operations. Despite the provision of American assistance through intelligence on compound locations, the UPDF was unable to capture or kill any meaningful LRA leaders, and distanced itself from the large numbers of civilians displaced or killed as a result of the violent response by the LRA. The exacerbation of the humanitarian situation by the UPDF was called by some an 'unmitigated disaster' (see Atkinson, 2009:15); however, the likelihood of such mistakes being repeated to such a large degree in a renewed offensive is arguably low.

Through its history of operations against the UPDA and LRA in northern Uganda, the UPDF has demonstrated the capability to practice effective counterinsurgency tactics when directed to do so. Such was observed in the previously discussed infrastructure projects pursued during OOC in areas near UPDF bases. With increased pressure by the United States for an emphasis on protecting civilian populations following OLT, a UPDF-led AU-

RTF could probably have pursued a wider campaign of aid and reconstruction for affected communities in addition to expanded combat operations. It should be stated, though, that the marginal gains made by UPDF attacks do not indicate that a counterfactual operation would be any more successful than OOC, and indeed may have led to more revenge-style LRA attacks and abductions.

## Summary of Findings

To review, the overall humanitarian outcome of OOC was positive in its direction and relatively substantial given the incredibly small number of American troops deployed to support the intervention.

The deployment of several ODAs of Special Forces to remote outposts across the LRA-affected areas of South Sudan, the DRC, and the CAR served not only as a boost to African Union troops through the advisory efforts of the green berets (observed through the absence of collateral damage or casualties previously seen during efforts, such as OLT), but also as an effective deterrent to LRA attacks. While trends in LRA activity declined before the arrival of the American troops and continued throughout the entire area of operations, attacks within 30 miles (48 kilometres) of these outposts saw a steeper decline once the ODAs had established themselves, indicating some degree of deterrent effect from the presence of American SOF. A positive outcome was also assessed from the PsyOp campaigns designed to facilitate defections of LRA fighters. Using specialised training and access to messaging resources, the American PsyOp specialists led the planning and execution of campaigns that saw an increase in the number of both rank-and-file and high-profile LRA defections, when compared to previous efforts by the UPDF. Lastly, an unintended but noted humanitarian outcome was delivered through the presence of the SORT in Nzara, South Sudan. Originally deployed to treat American casualties, the SORT (and CA medical specialists) eventually performed limited medical training and services in the immediate area.

A review of two potential alternative explanations – weather effects and Joseph Kony's personal health – supports the argument that the decline in attacks and the continued absence of any major resurgence by the LRA was due in part to the multi-pronged efforts of SOCFWD-CA and the AU-RTF.

## Conclusion

While the counter-LRA efforts are most remembered by the viral "Kony 2012" video campaign that gained millions of views and renewed global interest in the hunt for the warlord, the fact remains that the American intervention into Central Africa was a success in its attrition of the ranks of the group and prevention of the escalation of violence against civilians. Noted for its incredibly small size – given the geographic area for which it was responsible – SOCFWD-CA demonstrated the ability of US SOF to produce outsized results, and stands out as a relatively unique case of a SOF-driven humanitarian intervention. Thanks in large part to the presence of a well-developed NGO network and US-supported partner forces in the AU-RTF, the ODAs and PsyOp teams

were able to maximise their ability to disrupt the LRA both directly and indirectly, and to achieve several OOC objectives. As a result, OOC offers many potential lessons for both the United States and the conduct of humanitarian interventions.

As a case study in the application of a "cross-functional team" approach by US Army SOF, OOC represents both successes and missteps. The inclusion of PsyOp from an early stage as a fundamental component of SOCFWD-CA reflected not just a realisation of the difficulty in locating Kony and the LRA, but also an appreciation of the potential that "non-kinetic" special operations had in such scenarios (Tracy, 2021:43–44). The absence of civil affairs early in the operation however prevented SOCFWD-CA from representing what today would be called a true cross-functional team. Had such CA forces been deployed, SOCFWD-CA would undoubtedly have benefited from an improved ability to coordinate interagency efforts and to engage with civil society actors in the affected areas. Interviews with veterans of the operation (e.g. Anonymous SOF CA officer, 2023) reflect such, pointing to a gap in SOCFWD-CA understanding of tribal dynamics that might have otherwise improved OOC knowledge of local political geographies. Additionally, while the direct provision of humanitarian aid was outside the scope of OOC, deploying CA specialists with experience in such operations would probably have improved ongoing efforts by NGOs and civil society organisations to provide humanitarian aid directly (Easter, 2022). Still, the close coordination between American special forces and PsyOp teams under SOCFWD-CA represents a positive lesson in special operations. Additionally, the deployment of the SORT to Nzara and the ability to obtain civilian aircraft to reach the remote COFCs serves as a successful model of overcoming intense logistical hurdles in order to project power over an extended time. The unique nature of OOC and the LRA may however limit the applications of the operation to future humanitarian interventions. For one, the small size of the LRA compared to the numbers of AU-RTF troops makes OOC stand out from other potential or ongoing interventions against larger non-state armed groups, such as the Islamic State, Al-Shabaab, or Boko Haram. Moreover, the use by the LRA of abduction and child soldiers to fill its ranks probably contributed to the willingness of said fighters to defect. A similar PsyOp campaign targeting an armed group, such as Boko Haram, with more motivated members and many more who volunteered to join the organisation, might have struggled to elicit the same number of defectors. Such hypothetical interventions would however undoubtedly have benefited from the close interagency coordination and development of leaflets designed for target populations in areas of low literacy.

Future research may benefit from increased study of the deterrent effect of Western advisors. In 2018, the US Army established a new unit specifically designed for advising conventional forces, the Security Force Assistance Brigade (SFAB). This SFAB has since deployed to several countries to train and advise regular forces, as opposed to the historical focus of US Special Forces on training irregular or guerrilla forces (Feickert, 2020). While the primary focus of these "brown berets" has been the improvement of partner forces, conducting similar research on trends in non-state armed group activity during SFAB presence may illuminate the authority that the reputations of Western troops carry. Meanwhile, special forces continue to deploy worldwide to train and support other allied militaries. Similar research could provide insight into security changes caused

not just by improvements in units trained by special forces but by the very presence of the "green berets". Similarly, the recent growth in the Russian military footprint in the region presents several opportunities for studying the influence of military advisors. Deployments of Wagner mercenaries into the CAR and Sudan (in addition to several countries in West Africa) have garnered media attention for the brutal tactics being used either by Russian-trained security forces or directly by members of the ostensibly private military company (Pokalova, 2023:1–23). With respect to the scope of this research, recent reporting (Bishop, 2024) has even suggested that Wagner mercenaries deployed to the CAR are directly engaging in a campaign to locate and eliminate Joseph Kony. A study of similar scope might offer insight into the effects of American and Russian approaches to expeditionary operations.

Lastly, while directly addressing the IDP situation was outside the scope of OOC, future research might also benefit from examining the secondary effects the American intervention may have had on the humanitarian situation of these populations. The emphasis on interagency coordination placed by the US government for the support of OOC may well have led to the increased efficiency of development organisations and other NGOs working directly on humanitarian aid. Further research on the role that CA personnel played in facilitating this coordination would shed light on the value added, which is more difficult to quantify than numbers of fighters killed; yet, would be inherently valuable. Critically, analysis on the humanitarian state of the tri-border region since the conclusion of OOC would offer insight into the longer-term effects of American involvement in the region.

Overall, OOC serves as an example of a somewhat unique style of humanitarian intervention. Small in size and comprising mainly SOF, SOCFWD-CA utilised specialised training, unique capabilities, and the support of regional allies to disrupt the LRA to the point of irrelevance, preventing the escalation of violence against civilians and improving the humanitarian situation, despite failing to capture or kill Kony.

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# ENDNOTES
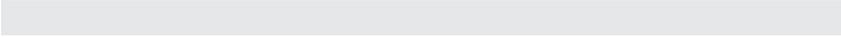
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# Encroachment Challenges for the South African National Defence Force: The Case of Army Support Base Potchefstroom

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## Abstract

The study reported on here examined the issue of informal settlements encroaching on military lands, focusing on the effects on military operations and civilian safety in the Potchefstroom region, particularly at the Army Support Base Potchefstroom and the General de la Rey Training Area. The study assessed the extent of settlement growth around military areas from 2011–2020 and its broader implications. Geographic information system and remote sensing technologies were employed, with a geographic information system-based change detection methodology tracking changes in land accessibility due to encroachment. Semi-structured interviews with senior military personnel and former candidates provided qualitative insights used in the interpretative phenomenological analysis, offering first-hand perspectives on encroachment impacts. The findings revealed significant encroachment by the Marikana and Eleazer Emerging Farmers communities (colloquially called 'Eleazer Up and Coming Farmers Community'), resulting in compromised security, vandalism, and safety risks within military areas. The research highlighted the urgent need for policy intervention to protect military lands and prevent further encroachment, ensuring operational integrity and civilian safety. The innovative combination of geographic information system analysis and qualitative methods contributes to urban geography, security studies, and governance by offering a comprehensive understanding of these challenges. The study advocates for immediate action by policymakers and stakeholders to address encroachment, safeguard military functionality, and protect affected communities. This provides a foundation for future studies and policy measures in similar contexts, emphasising the importance of integrating geographic and social perspectives to resolve such complex issues.

**Keywords:** Encroachment, Military Lands, Informal Settlements, Geographic Information System, Remote Sensing, Change Detection, Interpretative Phenomenological Analysis.

## Introduction

Land encroachment constitutes a significant challenge worldwide, ranging from suburban expansion in prosperous nations to the proliferation of informal settlements around urban areas in less developed regions (Bartels, 2020; Hawker & Livingston, 2010; McFarlane, 2012). The encroachment on military installations by informal settlements is a complex issue that has received limited attention in scholarly and policy discussions so far (Ripley, 2008). Encroachment reflects broad socio-economic inequalities, governance failures, and critical shortages of liveable spaces (Lachman, Wong & Resetar, 2010). The situation in Potchefstroom, South Africa, where informal communities inch closer to crucial military bases, such as the Army Support Base (ASB) in Potchefstroom and the General de la Rey Training Area, exemplifies the complexity of such interactions. The intersection of informal settlements and military territories offers a distinct perspective to evaluate the consequences of urban sprawl, urban planning deficits, and the resultant strain on both governmental and military entities to address these issues effectively.

The phenomenon in Potchefstroom characterises a broad, global conflict between housing rights and the prerogatives of national security and land preservation (Hou, Estoque & Murayama, 2016; Westervelt, 2004). The current research was designed to analyse the underlying factors of this encroachment, including housing affordability, land management inefficiencies, and the socio-economic motivations driving communities toward the fringes of military areas. Moreover, the research assessed the consequences of these encroachments on both the operational security of military facilities and the safety of the encroaching informal communities. By conducting a thorough investigation of the issue, the study aimed to bring to light an overlooked aspect of urban growth and its ramifications for military effectiveness, civilian security, and policy formulation. The investigation sought to bring about a reconsideration of societal space allocation, resource prioritisation, and the safeguarding of vulnerable populations while ensuring national security.

A critical examination of encroachment necessitates an understanding of its drivers, with urban sprawl often serving as a key factor in pushing urban boundaries into previously undeveloped or reserved areas (Bartels, 2020; Bayat, 1997; Mbatha & Mchunu, 2016). The current study extended the dialogue on urban expansion to highlight issues particularly pertinent to the developing world, with a special focus on South Africa. Since the end of apartheid in 1994, South Africa has grappled with managing urban sprawl, a challenge magnified by rapid demographic growth and industrialisation (Govindjee, 2022; Horn, 2019).

The current research examined the issue of informal settlements encroaching on military lands, a topic that remains insufficiently explored despite its significant implications for military operations, civilian safety, and socio-economic dynamics in adjacent communities. While existing research has predominantly focused on formal encroachment (Bartels, 2020; Kamalipour & Dovey, 2020), this study sought to address the complexities of informal settlement encroachment, particularly within the Potchefstroom area, to advance the discourse on urban geography, military security, and land governance.

Although urban sprawl has been extensively studied, the challenges posed by informal settlements encroaching on military lands, especially in emerging economies like South Africa, have received limited attention. Such encroachments threaten military functionality, degrade vegetation, and undermine the structural integrity of installations, presenting risks that warrant immediate scholarly and policy focus (Elwood, 2008; Henrico, Vukea & Smit, 2021; Lachman et al., 2010; Westervelt, 2004). This research aims to fill the gap in the literature by exploring these challenges in the Potchefstroom region, linking urban expansion to its effects on military domains.

Employing geographic information systems (GIS) and remote sensing (RS) for spatial analysis (Mohamed & Yacout, 2019; Olawole, Msimanga, Adegboyega & Adesina, 2016; Viana, Oliveira, Oliveira & Rocha, 2019), along with interpretative phenomenological analysis (IPA) for qualitative insights (Eatough & Smith, 2017; Gradcoach, 2021), the current study seeks to provide an in-depth understanding of encroachment dynamics. The analysis of informal settlement growth near military bases from 2011 to 2020, coupled with insights from military officials and settlement inhabitants, aimed to illuminate the scope, consequences, and potential policy measures to address encroachment. Positioned to make a substantive contribution to urban geography, security studies, and governance, the current research offers a comprehensive perspective on a complex issue that closely intertwines the destinies of military establishments and civilian populations.

## Research Methodology

The current study adopted a mixed-method approach to investigate the encroachment of informal settlements on military lands, focusing on the Potchefstroom region in South Africa. The methodology was structured to capture both spatial changes using GIS and RS, and qualitative insights by way of semi-structured interviews with military personnel and environmental management experts.

## Study Area

The area of interest discussed in this article is the town of Potchefstroom, which is located in the North West, a province of South Africa, administered under the JB Marks Local Municipality. Within the town, to the north, is a big military complex collectively administered under the ASB Potchefstroom. The area of significance for the current research was a big multipurpose South African (SA) Army for its combat training needs. Within the General de la Rey Training Area, lies an operational artillery unit of the SA Army, in the form of 4 Artillery Regiment, which is to the north of ASB Potchefstroom (Figure 1). The General de la Rey Training Area covers a total of 235 square kilometres, which is among the top five largest training and live firing ranges in South Africa (Cock & McKenzie, 1998; Matjane, Henrico, Mtshawu & Richmond, 2023).
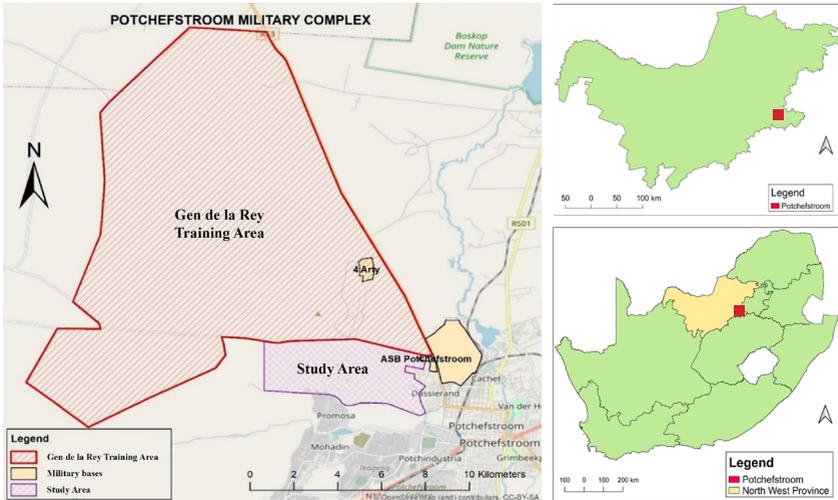
Note: The main map (A) above shows the Potchefstroom military complex, including the General de la Rey Training Area and the surrounding informal settlements within the study area. The inset map (B) places Potchefstroom within North West, while inset map (C) shows the national context, indicating the location of Potchefstroom within South Africa.

*Figure 1: Overview of the study area and its geographical context*
*Source: Matjane et al. (2023)*

## Data Collection and Analysis

High-resolution multispectral satellite imagery obtained from Google Earth Pro and the United States Geological Survey (USGS) facilitated a detailed analysis of land-use changes around the military bases from 2011 to 2020. The imagery was processed using ERDAS Imagine® and ArcGIS software, employing a change detection methodology that highlighted encroachment dynamics through time. The process involved georeferencing, supervised classification, and calculation of land-use changes, ensuring accuracy through cross-validation with ground-truth data. This geospatial analysis allowed for precise quantification of encroachment extents and the identification of patterns over the study period.

Semi-structured interviews (see Doody & Noonan, 2013; Wilson, 2014) were conducted with senior military personnel, former military candidates, and environmental management practitioners to gather in-depth perspectives on the encroachment phenomenon. These interviews explored experiences, perceived impacts, and potential mitigation strategies concerning informal settlement growth near military lands. The interviews were transcribed and analysed using IPA to extract meaningful themes and insights. This

qualitative component provided a nuanced understanding of the encroachment issue from the perspectives of those directly affected by or involved in managing the implications for military operations and environmental conservation.

## Sampling Strategy

Purposive sampling was employed to select interview participants who possessed relevant experience or knowledge regarding the encroachment on military lands (see Etikan, 2017; Taherdoost, 2018). Participants included officers and non-commissioned officers from combat and support units of the SA Army stationed in Potchefstroom and experts in environmental and range management associated with the military bases.

## Methodological Considerations

The mixed-method approach adopted by the study enabled a comprehensive examination of the encroachment phenomenon, combining spatial analysis with qualitative insights to offer a holistic view of the implications of informal settlement encroachment on military lands. The integration of GIS and RS technologies for change detection provided a robust framework for quantifying encroachment (see Lu, Mausel, Brondízio & Moran, 2004), while IPA offered comprehensive insight into the lived experiences and perceptions of key stakeholders. This methodological design ensured that the research addressed the complexity of encroachment on military lands, capturing both the physical encroachment patterns and their socio-political and operational challenges.

## Informal Settlements Encroaching on the Military Complex in Potchefstroom

Informal settlements are not restricted by their structural composition but are characterised mainly by their autonomy from government influence (Huchzermeyer, 2004). The economic structures of these settlements are as diverse as would be found in formally established settlements (Bartels, 2020; Matjane *et al.*, 2023; Mbatha & Mchunu, 2016). The study by Mohamed and Yacout (2019) on informal urban sprawl that took place in Iran, is relevant in establishing a theoretical understanding of the type of encroachment that took place in the current study area. In the study by Mohamed and Yacout, a local community was quietly established on unoccupied land driven by the lack of accessible land, and eventually became a reputable and officially acknowledged settlement. The concept of 'quiet encroachment' was established from the study by Mohamed and Yacout (2019), which was very similar to what has taken place in Marikana and the Eleazer Up and Coming Farmers Community in Potchefstroom (Matjane *et al.*, 2023). The informal settlements under the spotlight are visible from Eleazer Road, which is the parallel boundary of the General de la Rey Training Area. This area serves as the primary and sole practical training area for most military units in Potchefstroom (Figure 2).

*(a) Eleazer Up and Coming Farmers community in relation to Eleazer Road and the*



*(b) Marikana informal settlement visible from Eleazer Road*

Note: The aerial drone imagery was captured by the author in January 2023, highlighting informal settlements near the Potchefstroom military lands. (a) The Eleazer Emerging Farmers community, situated near Eleazer Road and the ASB Potchefstroom in 2021, shows the spread of settlements along key access routes.. (b) The Marikana informal settlement, as visible from Eleazer Road in 2023, illustrates the rapid expansion of settlements in proximity to military areas over two years.

*Figure 2: Aerial drone imagery*

According to a study by Victor (2019), the informal settlement Marikana was established in 2011, driven by a genuine need for land for housing. The settlement was established in a highly irregular manner but was later formalised following the initiative of the citizens to implement structure and facilitate the regulated provision of basic services. The settlement experienced a physical transformation in its geometric structure, following the steps taken by community leaders to structuralise the layout of the settlements. This transformation is evident when comparing the land-use land-cover maps for 2011 and 2020, depicted below in Figures 3 and 4.
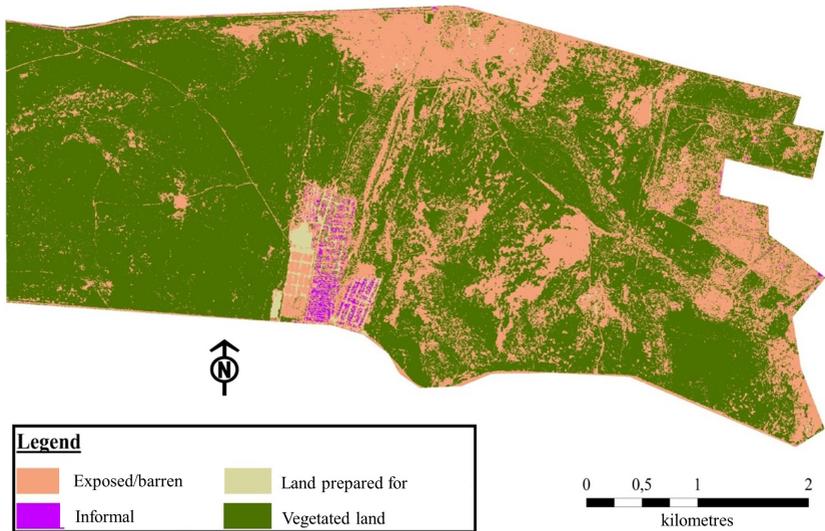
*Figure 3: Land use/cover (LULC) map of the area bordering military land in Potchefstroom in 2011*
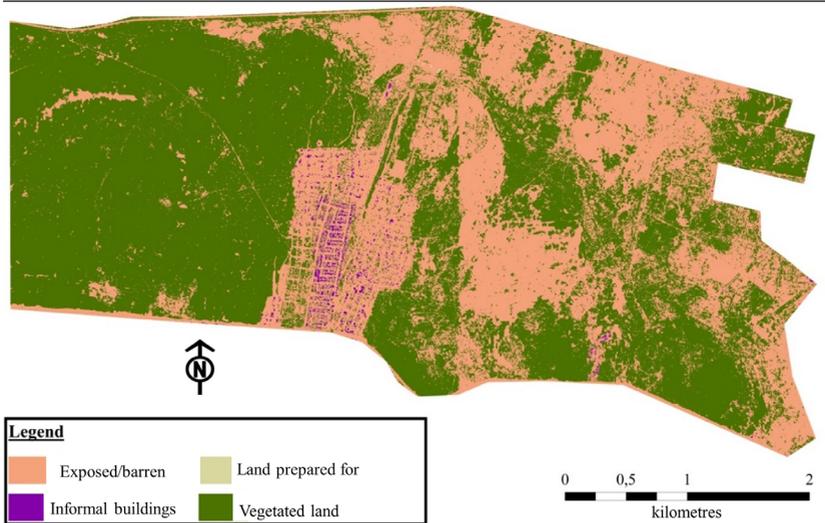


*Figure 4: Land use/cover (LULC) map of the area bordering military land in Potchefstroom in 2020*

Additional to the observable geometric transformations above, are the quantifiable changes that occurred in the area in terms of vegetation coverage and the space covered by informal or temporary building structures, as depicted on the pie charts in Figure 5.

2011 LAND COVER                    2020 LAND COVER
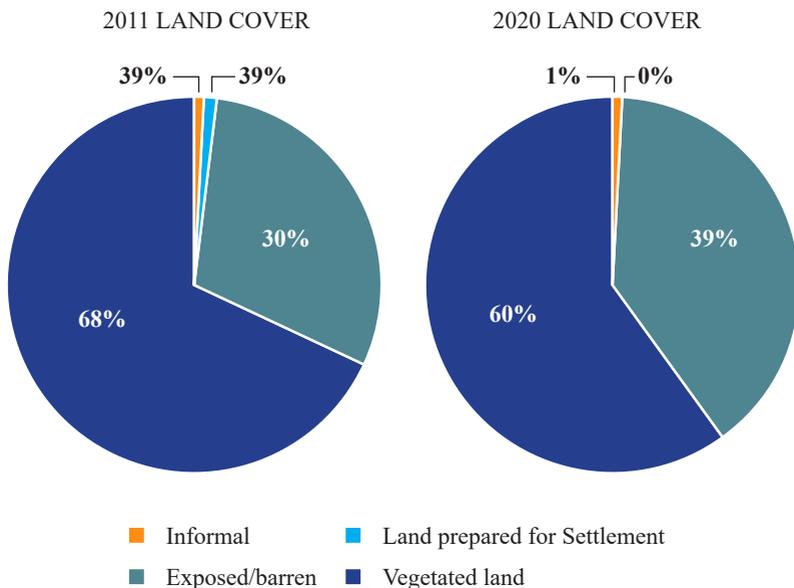


*Figure 5: Comparable land use/land cover (LULC) of the area bordering military lands in Potchefstroom between 2011 and 2020*

The graphical data presented above indicate a significant change in the area surrounding the Potchefstroom military area. Existing literature and personal accounts from interviews suggest that there were no settlements to the south before 2011, as the Marikana settlement was only established that year. Consequently, it is reasonable to conclude that the area consisted of undeveloped land before that time, making it unnecessary to depict an LULC map of the area before the establishment of Marikana. In contrast, witness accounts date the establishment of the Eleazer Up and Coming Farmers community, located to the northeast, to around 2001. Despite being the older of the two informal settlements, the growth of the Eleazer Up and Coming Farmers community has been relatively slow and difficult to quantify due to its dispersed nature. The data presented also confirm that, since 2011, there has been rapid and aggressive encroachment onto the Potchefstroom military land, which had historically maintained a buffer between the military area and the local community.

## Results: Reflection on the Consequences of Encroachment

According to witness accounts acquired from interviews, encroachment onto the military is a reality in Potchefstroom, and the consequences are of serious concern to the military. The consequences do not affect the military exclusively but has repercussions for the ecology of the region. This is a serious concern, which demands a qualified analysis. As reflected in Figure 5, the most notable consequences of the two informal settlements are the degradation of land to establish housing structures and landscaping. Vegetated land and land prepared for settlement were lost to expose barren land. Minimal rehabilitation of the land took place throughout the inquiry.

Due to the economic challenges experienced by the residents of the two informal settlements in question, they are often compelled to employ creative methods to generate income and sustain their livelihoods. According to research by Nkrumah *et al.* (2022), informal settlers are among the most creative and innovative entrepreneurs that exist in the economic sphere, as the disparate circumstances within which they exist inspire them to come up with creative means of survival. This form of creative entrepreneurship is at times risky to the surroundings where the resources necessary for this ingenuity are derived. This phenomenon is a prevalent concern to the military community, which the informal settlements are neighbouring, as observed in Potchefstroom. According to interview data collected, numerous challenges arose following the establishment of the two informal settlements, which were coded and grouped using ATLAS.ti as reflected in Figure 6 below. The diagram illustrates the direct and indirect negative effects of informal settlement encroachment around military areas. Key issues include theft of military property, resource depletion, and environmental degradation, all of which are interconnected and lead to broader operational difficulties. The chart also highlights the effect of these encroachments on military personnel, such as workload stress, frustration, and operational interruptions. The categories in the diagram, such as illegal activities (e.g. poaching, theft, and unauthorised access), lead to harmful effects, such as violence, health and safety concerns, and community conflict. The encroachment also results in significant hazards, including fatal accidents and trauma, demonstrating the gravity of the situation. Furthermore, the spread of pompom, an unwanted plant species,[2] due to informal farming activities further aggravates environmental degradation. This diagram emphasises how these direct and indirect negative effects stem from both illegal behaviour and operational difficulties, creating a complex and multifaceted set of challenges that military operations must address. The coding and categorisation process helped identify these recurring themes and the relationships between them, providing a clear understanding of the systemic nature of the issues caused by the informal settlements.

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[2] *Eupatorium macrocephalum (= Campuloclinium macrocephalum) (Asteraceae)* A weed that causes serious degradation of the veld, lowering the biodiversity and reducing the grazing capacity by being unpalatable to large herbivores. This plant is native to Central and South America. Introduced for ornamental purposes but now a noxious weed in the grassland regions of Gauteng, KwaZulu-Natal, Limpopo, Mpumalanga and the Eastern Cape (https://invasives.org.za/fact-sheet/pom-pom-weed/).
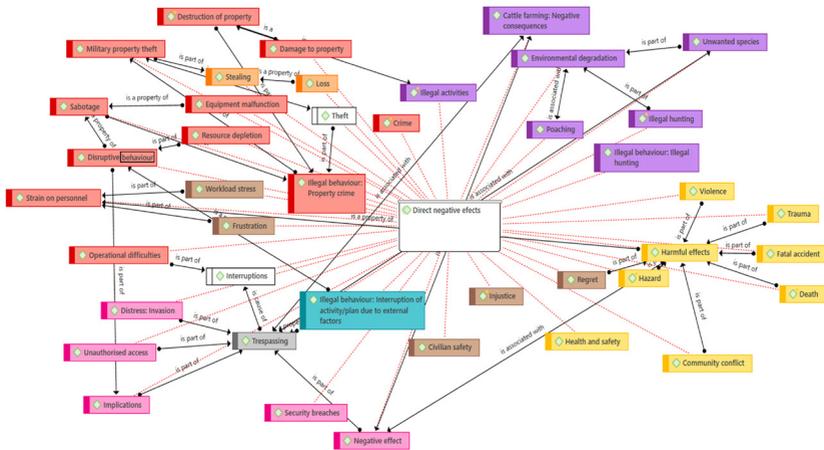
*Figure 6: Network diagram of the consequences of Marikana and the Eleazer Up and Coming Farmers Community on the Potchefstroom military*
*Source: Author's own compilation*

Not conclusively attributed to the formation of the informal settlement Marikana and the subsequent growth of the Eleazer Up and Coming Farmers Community, but bearing credible suspicion, is the unlawful removal of the fence that used to enclose the General de la Rey Training Area. According to numerous officials interviewed, the fence was stolen by the members of the informal settlements, to enclose personal property in the case of the Eleazer Up and Coming Farmers Community, and it was even speculated that the fence was stolen to trade it for cash at the local scrap metal dealer. Former long-serving military officials reported during interviews that, before the establishment of the informal settlements, the fence seldom went missing, and in cases where the fence would be compromised, it would simply be due to it falling to the ground due to non-human actions (Matjane *et al.*, 2023:72).

To illustrate the severity of the encroachment effect on military land in Potchefstroom better, Table 1 comprises a compilation of direct quotations from interviewees. All quotations are reproduced verbatim and unedited. The quotations shed light on various aspects, including:

- Theft and repurposing of military fences;
- Dangers of unexploded ordnance;
- Repercussions for military training and readiness; and
- Broad implications for the safety of both military personnel and the surrounding community.

*Table 1: The effects of encroachment on military lands in Potchefstroom*

| Interviewee description | Quotation |
|---|---|
| **Respondent discussing fence theft and corruption** | "The fence was stolen. A contractor was appointed to replace the fence, but it was again stolen during the replacement process. As a phase was completed, that section of fencing would be stolen behind the contractor. Corruption also played a role in the training area not having a fence, as some uniformed members took bribes from the project." |
| **Respondent on safety challenges and trespassing** | "The thing about the settlements around those areas is that they are giving us a challenge regarding the safety of the unit. Firstly, some of the informal area members have cattle and goats and all these animals are grazing in the area around our shooting range. The members of the informal settlement staying next to Promosa [a township] are moving into the training area and they are poaching, they are searching for scrap metals and it's a challenge. Some of the scrap metals are ammunition that did not explode, and we cannot monitor that since there is no fence to cover the whole range and that is a big challenge." |
| **Witness of fatalities due to unexploded ordnance** | "Yes, I can remember at around 2010/11 a young boy and his grandfather were killed in a shack from an explosion caused by their attempt to dismantle a mortar bomb, which they had taken from the training area. A board of inquiry was done on this. This is the only incident that I'm aware of." |
| **Respondent recalling various incidents of death and injury** | "Yes, I have. About five or seven years ago, a lady soldier rushed running towards us during a training exercise after discovering a dead body in the training area. Also, many years ago, we once found a body on the far western side of the training area. The corpse was of an old person who had probably died from a health or fatigue complication, as there was also a bicycle next to the corpse. I once heard of members who had built their shacks from discarded rocket crates, and the shack burned, killing the inhabitants of that shack. I haven't heard of any ammunition-related injury or death to a civilian." |

| Interviewee description | Quotation |
|---|---|
| **Respondent on unaccounted deaths** | "There have been a few deaths of people who are unaccounted for in the training area. Over the past two decades, we used to find unidentifiable remnants of people who had died in the training area and even on this other occasion where a member was killed by a 90 mm HEAT [high-explosive anti-tank] projectile, we could only locate his upper body remains" |
| **Respondent on discovering victims of the ordinance** | "Not aware of others, but only one of a decomposing body that was found just close to the fence." |
| **Respondent on fatalities involving a high-explosive anti-tank (HEAT) round** | "I remember in the early stages of the settlements, we found two guys killed by a 90 mm HEAT round that they had tampered with, and it then exploded in their hands." |
| **Respondent on child injured by grenade** | "[A] few years back, but not sure of the date specifically. A child picked a hand grenade that exploded in the child's hands. I believe it was an unexploded ordnance." |
| **Respondent on additional security measures** | "Are there any additional security measures that were implemented to safeguard the property within this area? It's normal duty that we do and the issue now that we're experiencing is because we are now busy with a lot of operations in terms of deployments. The unit ends up not having a lot of people and now they become overstressed when it comes to duty. There are not enough personnel to guard this whole unit and that is currently the challenge we are experiencing. For the personnel, once everyone is on operations, there is not enough personnel to safeguard the property." |
| **Respondent on compromised military readiness** | "Yes, it [the doctrine] is compromised. We used to stand guard mainly after hours and over weekends and during the week, we would engage in various forms of training. Now that our personnel are committed to safeguarding installations, we are deprived of conducting such training for these members." |

Note: Please note that all quotation were reproduced verbatim and unedited.

Following the insightful quotations provided in Table 1, the breach of the perimeter of the military land has led to multiple complications. The General de la Rey Training Area, primarily utilised for discharging military munitions at significant volumes, presents a lucrative opportunity for local scrap metal collectors. This is due to the dense concentration

of military munitions within the area, which, while financially appealing, also introduces substantial risks. The pursuit of scrap metal, often involving unexploded ordnance, has tragically resulted in both fatalities and serious injuries, highlighting the perilous nature of this activity.

The distressing incidents documented during the interviews underscore the traumatic effects on military personnel, although it was noted that the lure of financial gain often outweighs the apparent dangers for those engaging in scrap metal collection. Despite the ongoing challenges posed by illegal scrap metal scavenging, military personnel exhibit an understanding of the struggles of the local community, pointing to a nuanced perspective on the issue. Concern grows, however, as the collection of scrap metal escalates into criminal activities that directly compromise military infrastructure.

The detrimental effects extend beyond mere scavenging, as deliberate sabotage and theft targeting vital military assets have been reported. Informal settlement residents have been implicated in stripping military vehicles and dismantling essential infrastructure for scrap metal, notably damaging the Dirkie Uys shooting range. Such actions severely affect military readiness and the capacity to conduct essential training exercises, particularly affecting the 4 Artillery Regiment based within the General de la Rey Training Area.

To counteract the unrestricted access and ensuing vandalism, the military has been compelled to allocate additional personnel for the security of critical areas, further straining its resources. This adaptation signifies the significant challenges faced by the military in maintaining the integrity of its training grounds and the safety of its operations. The situation calls for an urgent reassessment of security and community engagement strategies to mitigate the risks posed by the encroachment and to safeguard both military assets and the local populace from the unintended consequences of such interactions.

## Findings and Potential Solutions

The findings of the current study indicate a significant and accelerating encroachment by informal settlements on military land in Potchefstroom, with detrimental effects on both military operations and civilian safety. Spatial analysis, using GIS and RS technologies, vividly demonstrated how the Marikana and Eleazer Up and Coming Farmers communities have progressively eroded the buffer zone that once separated civilian areas from military operations. This encroachment has resulted in complications, such as theft, vandalism, environmental degradation, and most critically, compromising military readiness.

The interviews with military personnel and community members provided further insight into the challenges posed by this encroachment. The theft of military property, particularly perimeter fencing, and the removal of unexploded ordnance for scrap metal have led to significant safety risks, injuries, and fatalities. Trespassing into live fire training areas remains a persistent problem, affecting both security and operational capacity directly.

Addressing these challenges requires a comprehensive and multi-faceted approach. Strengthening the perimeter security of the military through more robust fencing and the deployment of advanced surveillance technologies, including drones and thermal imaging,

is essential. These measures should however be complemented by community outreach and engagement efforts. Working with local leaders to formalise land-use agreements and provide educational programmes on the dangers of encroachment could mitigate the risks posed by informal settlements.

Equally important is the need for stronger urban planning policies. Co-ordinated efforts between the military, local municipalities, and the national government are required to establish clear buffer zones around military installations and enforce stricter land-use regulations. Environmental rehabilitation efforts, such as reforestation and soil conservation, should also be prioritised to address the degradation caused by informal settlements and to restore ecological balance. These strategies, if implemented, would not only protect military assets but also contribute to a sustainable relationship between military operations and civilian communities.

## Conclusion

The current study has provided a detailed exploration of the encroachment of informal settlements on a number of military bases in the Potchefstroom region, specifically targeting the Army Support Base (ASB) Potchefstroom and the General de la Rey Training Area. The findings illustrate the significant transformation of land that once served as a buffer between the military and civilian communities, driven largely by the rapid expansion of informal settlements, such as Marikana. This encroachment presents an existential threat to the operational capabilities of the South African National Defence Force (SANDF) in the region, and introduces heightened safety risks.

The investigation has highlighted a range of consequences – from compromised military security and vandalism of critical infrastructure to broader ecological disturbances. These developments underscore the urgency of addressing this encroachment to safeguard military readiness and community safety.

Reflecting on the research objectives, the need for a proactive and integrated response from government and military authorities is clear. Enhanced perimeter security, stronger urban planning, and a focus on community engagement will be crucial in mitigating the risks posed by these settlements. Establishing regulated buffer zones around military installations and addressing the underlying socio-economic factors driving informal settlement growth are essential steps forward.

While the current research has made significant progress in examining the issue within the Potchefstroom context, it also highlighted the need for further research in other regions and under different socio-economic conditions. Broadening this understanding is vital for developing comprehensive strategies that can tackle encroachment effectively, not just in military contexts, but also in addressing the broader implications of urban sprawl and land-use management on national security and community development. The insights gained from the current study point to the necessity for immediate action, and provide a framework for future investigations and policy interventions

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# ENDNOTES

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# Environmental Security Revisited

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## Abstract

The concept "environmental security" grew out of the environmental movement of the 1970s, gaining significant attention in the academic and policy communities at the end of the Cold War in the early 1990s. Early writings focused mainly on how security-related activities, including armed conflict, affect the environment, and how environmental issues might influence or drive national or international security. By the early 2000s, numerous perspectives and definitions of environmental security had evolved, and were being debated in scholarly literature, including more subtle ways by which environmental change might influence security. Some scholars contested the very concept of environmental security. By the 2010s, research and writing focused on environmental security diminished, to some extent being replaced by discussions and debates in both academic and policy settings about the relationship between climate change and security (later referred to by some as "climate security"). In recent years, conversations about environmental security are re-emerging, driven in part by an acknowledgment that the overriding focus on climate change security might be too narrow, missing other ways that environmental change influences security, and vice versa. The study on which this article reports, briefly traced the history of environmental security in both academic and policy literature. Next, the article summarises climate change security perspectives, discussing the climate–conflict nexus, and including examples of climate security strategy and policy. The article then explains aspects of environmental security that are excluded or neglected from the climate security discourse, making a case for a return to a more expansive approach to environmental security. Finally, an updated definition of and framework for environmental security are proposed. Environmental security is seen as the ability of individuals, groups, or states to adapt to, mitigate, or avoid environmental change without critical adverse effects, which significantly degrade the integrity, values, or well-being of states, communities, or individuals. The definition incorporates elements of the original, state-focused definition of environmental security, but also includes important elements of human security (that affect community or state security).

**Keywords**: Environmental Security, Climate Change, Climate Security, Human Security, Ecological Security

## Introduction

Although the relationship between the environment and security has captured the attention of strategic thinkers for millennia (e.g. Tzu, 1971), the contemporary academic and policy literature on environmental security spans only the past few decades. Links between climate change and security represent an important, more recent subset of the environmental security literature. In this article, I begin by defining key terms important to any discussion of the environment and security. I present a review of the environmental security literature, noting the four phases of environmental security research that span the past three decades. Then, I focus attention on an important subset of environmental security – the recent, increasing interest by government and academia in the relationship between climate change and conflict, as well as climate change and security (sometimes referred to as "climate security") (United Nations Development Programme [UNDP], 2023) more broadly. Given the significant international attention on climate change, the emphasis and focus on climate security is not surprising, but in the final section of the article, I propose that this emphasis has drawn attention away from other very important environmental security issues that may not be related to climate change. The article concludes by arguing for a new fifth phase of environmental security that draws on the best elements of previous phases, and proposing an updated framework for environmental security thinking.

## Defining Environmental Security

Both "environment" and "security" can take on a wide range of meanings. The first official use of the term "environmental security" appeared in a publication by the Brundtland Commission, *Our common future* (World Commission on Environment and Development [WCED], 1987), but the term was not defined clearly. One of the early, practical definitions was proposed by Levy (1995). The term "environment" was used 'for issues involving biological or physical systems characterized either by significant ecological feedbacks or by their importance to the sustenance of human life' (Levy, 1995:39). Security, used in the context of environmental security, relates primarily to *national* security, and is best defined in terms of threat, or something that might disrupt security. Levy proposes, '[a] threat to national security is a situation in which some of the nation's most important values are drastically degraded by external action' (Levy, 1995:40). Such external action is not limited to foreign military force, as was often the case in more traditional security studies prior to and during the Cold War. Levy concedes that such a definition of security will no doubt have blurry edges, and what constitutes "important values" as well as "drastic degradation" will continue to be contested themes in security studies. Although the state remains the primary level of analysis for most security studies, it is important to consider security above and below national level, especially in environmental security studies. Barnett (2007) adds depth to Levy's (1995) definition, arguing that, in order to understand environmental security, one must first understand what is meant by environmental *in*security, which Barnett (2007:5) defines as 'the vulnerability of individuals and groups to critical adverse effects caused directly or indirectly by environmental change'. Barnett (2007:5) then defines environmental security as 'the ability of individuals to avoid or adapt to environmental change so that things that are important to their well-being are

not substantially negatively affected'. While Levy's definition focuses primarily at the state level, fitting better within the spatial focus of traditional security studies, Barnett's definition broadens the scope of environmental security beyond state level, incorporating a spatial level as fine as the individual. Floyd (2010), on the other hand, focuses on the state level, critically examining United States (US) environmental security policy through the lens of securitisation theory. Much of the ongoing debate surrounding environmental security results from the lack of a widely accepted definition of environmental security, including the appropriate spatial level of focus (Briggs, 2010). This tension between an individual or local level of focus and a state or international level of focus is discussed in detail in the next section. Barnett's definition of environmental security leads us to another term important to note before proceeding – "human security".

Human security has emerged in several fields (e.g. development, security studies, geography, etc.) as a concept closely related to environmental security, and deserves brief attention here. The concept "human security" was defined in 1994 by the United Nations Development Program (UNDP) (1994). Arguing that, for too long, a narrow definition of security had focused at the nation-state level, ignoring or diminishing security for individuals, the above UN report defines human security as –

> [F]irst, safety from such chronic threats as hunger, disease and repression. And second, it means protection from sudden and hurtful disruptions in the patterns of daily life – whether in homes, in jobs, or in communities. Such threats can exist at all levels of national income and development (UNDP, 1994:23).

While this definition is valid, in many ways it has proved to be too broad to help prioritise effective human security policy, especially at a strategic level, or to focus academic research. The report however did, for the first time, make an explicit link within the UN between human security and the environment, and continues to influence the development community, as well as later phases of the environmental security research (Dalby, 2009). These are discussed below. The Fifth Assessment Report (AR5) of the Intergovernmental Panel on Climate Change (IPCC) dedicates a chapter to human security. In this report, it concedes that definitions of human security vary across disciplines, but posits the following definition in the context of climate change: 'a condition that exists when the vital core of human lives is protected, and when people have the freedom and capacity to live with dignity' (Adger & Pulhin, 2014:3). The IPCC assessment reports continue to drive international policy, goals, agreements, and treaties on a wide range of topics, including environmental security.

Finally, a key focus of security studies has been on conflict (Briggs & Weissbecker, 2011). Much of the existing environmental security research has focused on the relationship between environmental degradation, environmental change, or resource scarcity and violent or armed conflict (e.g. Briggs & Weissbecker, 2011; Matthew & McDonald, 2009). More recently, however, as discussed below, environmental security research has broadened to focus on non-violent conflict and even co-operation. It is important to note that the absence of conflict does not necessarily equate to security. Conflict, especially

violent conflict, is more easily quantifiable than an absence of conflict. Similarly, security tends to be more subjective and difficult to quantify than conflict. This difference has contributed to many attempts to link environmental change, especially climate change, and violent conflict, particularly in the political science community, whose methods favour very narrowly focused regression analysis that attempts to establish causal relationships among dependent and independent variables (e.g. Adger & Pulhin, 2014). I argue that the difficulty in defining "security" has contributed, in part, to a relative dearth of rigorous scholarly research on climate change–security issues, and an over emphasis on climate change–conflict (especially violent conflict) research.

For the past twenty-five years, environmental security research has included natural resource scarcity and violence linkages; natural resource abundance and violence; resource scarcity and co-operation; environmental degradation resulting from war or conflict; and issues relating to human security (Dalby, Brauch & Spring, 2009; Spring, Brauch & Dalby, 2009). Environmental security has been addressed in popular literature and media, scientific research, and in policy at many levels of governance. In the next section, I review the evolution of environmental security through its first three phases, as delineated by Dalby, Brauch and Spring (2009), discuss the fourth phase of environmental security research (see Spring, Brauch & Dalby, 2009), and then transition to focus on recent climate change–conflict–security research and policy. Echoing much of the environmental security debate is a growing body of critical environmental security studies (e.g. Detraz & Betsill, 2009; Peluso & Watts, 2001), which will not be discussed here.

## The Four Phases of Environmental Security Research

An overview of the environmental security literature reveals four general phases of research. These phases provide a useful framework for reviewing the evolution of environmental security research.

The **first phase** emerged during the final years of the Cold War in the late 1970s and 1980s. A handful of scholars made a case for including the environment as a component of national security in the United States (Dalby *et al.*, 2009). The Brundtland Report is often cited as the genesis of environmental security concepts (WCED, 1987). This broadening or redefining of traditional security studies, beyond strict defence or military concerns, represents the first attempt to establish links between environmental change or degradation, and security. While the concept of environmental security expanded the traditional Cold War era definitions of security, the state remained the primary actor to be secured.

By the early 1990s, the **second phase** of environmental security research saw both the introduction of theory and an increase in quantitative research and case studies. The most well-known and most widely cited research was published by the Toronto Group (see Homer-Dixon, 1994), who attempted to identify more rigorous empirical, causal connections between environmental degradation and conflict, especially violent conflict. At the same time, Kaplan (1994) presented a similar (and even less nuanced) message in the popular media about the likely rapid unravelling of security in Africa (and eventually the rest of the developing world) as a result of population increase and competition over

scarce resources. Kaplan's essay was widely read and cited in the policy community, including the US State Department and the White House (Matthew & McDonald, 2009). As in the first phase, the state remained the primary level of focus, and most of the research was based on "realist" theories of political science thinking. Much of the research by the Toronto Group has since been criticised for overstating direct, causal connections among scarcity, poverty, and violence, ignoring or downplaying other more complex paths or linkages between the environment and security, diminishing the role of governance in conflict, and focusing almost entirely on environment–security connections in the global South (Briggs, 2010). Also during this second phase, Deudney (1990) provided the most frequently cited argument against linking environmental degradation and national security, offering three claims:

> First, it is analytically misleading to think of environmental degradation as a national security threat, because the traditional focus of national security – interstate violence – has little in common with either environmental problems or solutions. Second, the effort to harness the emotive power of nationalism to help mobilize environmental awareness and action may prove counterproductive by undermining globalist political sensibility. And third, environmental degradation is not very likely to cause interstate wars (Deudney, 1990:461).

Of Deudney's three claims, only the third remained widely unchallenged through the ensuing environmental security research and discourse. The first claim has broken down as most states have broadened their definition and focus of "national security", especially in the post-Cold War (and post 9-11) eras. Some scholars, especially those from a critical perspective, continue to uphold Deudney's second claim, but there is little definitive evidence to support it to date (though the emergence of "Green Parties" in some states could provide an example).

By the late 1990s, a surge in interest in environmental security by intergovernmental organisations (IGOs), non-governmental organisations (NGOs), and national governments led to a third phase of environmental security research. This **third phase** broadened the scope of environmental security research beyond resource scarcity and violence.[3] It included a series of government-sponsored studies on the complex relationship between environmental change and security (International Human Dimensions Programme [IHDP], 1999; Schubert, Schellnhuber & Buchmann, 2008), and environmental security opportunities for co-operation and peacemaking (Conca & Dabelko, 2002; Priscoli & Wolf, 2009). Methodologies continued to evolve as disciplines other than political science became increasingly involved in environmental security research (including geography, anthropology, water resources and hydrology, and sustainability). There was growing consensus that environmental scarcity (e.g. a lack of water or food) alone was unlikely

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[3] Concurrently, beginning in January 1990, the United Nations declared the 1990s to be an International Decade for Natural Disaster Reduction, intended to reduce loss of life, property damage, and social and economic disruption caused by natural disasters, especially in developing countries. See https://www.undrr.org/our-work/history.

to lead to interstate conflict. Although many researchers continued to acknowledge the importance of national security (see Matthew & McDonald, 2009), others began to explore the consequences of global change (including climate change) for local security, including human security, and the possible emergent effect local insecurity or instability may have on national or regional security. During this third phase of environmental security research, growing interest within the US government, especially the security community, had several consequences. The intelligence community explored the security implications of environmental change, including extreme weather and climate change (Blair, 2009; National Intelligence Council, 2008; 2012). The US Department of Defense (DoD) incorporated environmental security concepts in its key strategy documents (Gates, 2008; 2010; Hagel, 2014), and funded environmental security research. For the first time, environmental security issues were integrated into the president's National Security Strategy (Obama, 2010). Congress held hearings on related environmental security issues (Blair, 2009; Burke, Miguel, Satyanath, Dykema & Lobell, 2009), and incorporated climate change into legislation (110th Congress, 2008). Although the US intelligence community, the DoD, and the Department of State have all addressed environmental security issues and concerns, no US government agency offered a concise definition of environmental security. Several Washington-based NGOs created sections or teams to integrate research and policy on environmental security in the United States.[4] Many of these actions will be discussed in greater detail in the following section on climate change and security. Distilling the work of the first three phases, Matthew and McDonald (2009) identify eight environmental 'threats' to US national security, including the following that continue to be a focus for research and/or policy:

- Conflict (not necessarily violent conflict) affecting US interests that is caused or amplified by environmental problems, including migration;
- Activities affecting US access to environmental goods abroad;
- Greening the military;
- Using military and intelligence assets to support environmental (and energy) initiatives;
- Promoting dialogue abroad; and
- Providing humanitarian assistance and disaster relief.

In summary, the third phase of environmental security research extended the scope of environmental security research, and has seen a direct link between this expanded research and environmental security policy.

Although the third phase of environmental security research significantly expanded the research and policy agenda, especially in the United States, Dalby et al. (2009) identify several notable gaps, including 'a lack of research on hazards and disasters, […], social

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[4] Notable examples are the Environmental Change and Security Program at the Woodrow Wilson International Center for Scholars, the Center for a New American Security (CNAS), the Center for Strategic and International Studies (CSIS), the Center for Naval Analysis (CNA), and the Center for Climate and Energy Solutions (C2ES; formerly the Pew Center on Global Climate Change).

vulnerability, bottom-up resilience as well as peace building' (Dalby et al., 2009:790). Additionally, most of the research during the first three phases was conducted by North American or European researchers, with few contributions from scholars in the global South or Asia. With the increasing availability of satellite-based data of the environment of the earth, and more countries and private entities launching earth-observing satellites, the number of methods employed increased during the third phase. Examples include qualitative case studies, quantitative analyses of conflict to determine environmental drivers, quantitative analyses of transboundary water agreements and disputes, and a range of simulations and games to explore problems and identify possible policy solutions.

> [Nonetheless], while quantitative methods may contribute to the recognition of complex linkages among structural determinants, and thus to an advance in our knowledge (by way of a *heuristic* function), they remain insufficient because they exclude the complexity of the interactions between nature and humans that can be neither modeled nor predicted (Dalby et al., 2009:789, original emphasis).

Where traditional quantitative methods are insufficient, and socio-environmental problems are too complex to be modelled, more integrative, non-traditional approaches may offer solutions.

> Both reactive and pro-active or anticipatory learning for launching adaptive and mitigating responses requires knowledge and an understanding of these interactions that go beyond the competence of any discipline and can probably only be achieved by inter- and multidisciplinary research teams (Dalby et al., 2009:790).

Scenario planning methods offer one approach for ongoing environmental security research. Such planning can help understand and plan for complex problems, where uncertainty is high, controllability is low, and solutions require interdisciplinary thinking and planning. Additionally, high-performance computing enabled more complex modelling, with increased resolution and faster run times at lower cost and greater access. By the early 2010s, as the research (and policy) adjusted to fill the gaps in environmental security knowledge, Dalby et al. (2009) suggested we had entered a new, fourth phase of environmental security research.

Dalby et al. (2009) and Spring et al. (2009) challenged scholars in different fields conducting environmental security research to be even more comprehensive than during the previous phases:

> It [research] needs to integrate physical and human sciences in ways that do neither focus simply on states on the one hand or environmental causes as a simple variable on the other. Dynamic change is crucial for understanding both human and ecological systems and how they are coupled in contemporary security thinking which is simultaneously sensitive to the specific context in which human insecurity occurs. Ecological thinking with its focus on evolution, adaptability, resilience, and interconnection now incorporates

security in contrast to earlier formulations assuming central control and violence as the essence of security (Spring et al., 2009:1294).[5]

I propose that ongoing and future environmental research should, therefore, analyse risk and vulnerability, and anticipate environmental change that could lead to instability in order to facilitate timely preventative capacity building and policies of adaptation. Such focus does not neglect state-level security issues; rather, it necessarily includes elements of human security, leading to a more comprehensive, multilevel approach to environmental security studies.

Environmental security research in the fourth phase showed signs of more comprehensive approaches than the previous three phases, including the application of a risk framework to environmental security (Mabey, Gulledge, Finel & Silverthorne, 2011), emphasis on human security (Beebe & Kaldor, 2010; Smith & Vivekananda, 2009), and peacebuilding (Dabelko, 2008). Halden (2011) identifies areas to support the theoretical underpinnings of environmental security research, including incorporating broader areas of social theory, risk society, and conflict (e.g. Rasmussen, 2006), or environmental sociology. Finally, during the first three phases, most of the debate surrounding environmental security focused on the past while discussions of the future of environmental security were neglected. An important part of the most recent phase of environmental security studies, in both the academic and policy communities, was a renewed focus on the relationships among climate change, conflict, and security.

## Climate Change, Conflict, and Security

Related to ongoing research and debate about environmental security is the study of the connections between climate change and conflict (Barnett, 2003). Once thought to be changing too slowly to serve as a security concern, climate change did not enter as a driver in the environmental security debate until well into the third phase of research (the early to mid-2000s). Barnett (2003) provides one of the first comprehensive discussions of climate change as a security issue, cautiously suggesting that framing climate change as a security issue (at least in part) may help bridge science and policy. A number of more recent studies examined possible correlations between changes in climate and violent conflict in particular (see, for instance, Barnett & Adger, 2007; Tol & Wagner, 2009). Most of this research grew out of the political science community, and employed traditional empirical methods. Historians expanded research in this area as well. For example, Parker (2008) demonstrates a connection between climate change in the mid-seventeenth century (a period of environmental cooling) and state failure. The Fourth Assessment Report (AR4) of the Intergovernmental Panel on Climate Change of 2007 (see Parry, Canziani, Palutikof, Van der Linden & Hanson, 2007) briefly mentions links between climate change and conflict, but does not provide supporting research. Nonetheless, causal connections between climate change and conflict are the subject of ongoing debate among scholars. In the end, most of the existing research attempting to link climate change with conflict

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[5] Although not specifically focused on security, the concept of coupled human and natural systems (CHANS) was explored by Liu *et al*. (2007).

does little to address the uncertainty surrounding future climate change and security, and has been generally insufficient to meet the demands of the policy community. Hsiang, Burke and Miguel (2013) however conducted a meta-analysis of the 60 most rigorous quantitative climate change–conflict studies, and identified causal evidence linking climate change and conflict across a range of temporal and spatial levels. Dalby (2013) argues that climate change provides a renewed urgency for environmental security, and focuses specifically on urban vulnerabilities to extreme climate-related events, unforeseen social and political consequences of adaptation and/or mitigation efforts, and geo-engineering.

A much larger body of grey literature on the topic includes white papers, studies, and other publications by several government institutions, IGOs, and NGOs. Additionally, recent US national strategic policy documents address the (national) security implications of climate change, including the –

- 2022 National Security Strategy;
- 2022 National Defense Strategy;
- 2021 National Intelligence Estimate on Climate Change Impacts to National Security;
- 2021 DoD Climate Risk Analysis; and
- 2021 DoD Climate Adaptation Plan.

Some scholars have expressed concern about the "securitisation" of climate change (e.g. Warner & Boas 2019), adopting a cautionary tone during this most recent phase of research, and attempting to steer the focus of environmental security away from the more traditional state level of focus. Dabelko (2009:16) cautions against this:

> Dismissing climate-security links because of ambiguous evidence on climate change's contribution to violent conflict ignores a vast array of areas where climate change's expected direct and indirect effects, as well as actions to mitigate or adapt to climate change, constitute issues of concern to a national government and the actors charged with securing its national interests.

In the United States, the foreign and domestic policy communities remain engaged on issues related to climate change and security. Within the executive branch, the national security community has conducted or funded several studies to understand the national security implications of climate change better. In 2008, the DoD reshaped the Minerva Initiative to fund social science research on topics important to DoD on security and stability. The Minerva Initiative[6] identified seven priority research topics, including the

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[6] In 2009, the Minerva Initiative awarded a 5-year, $7,6 million to the Strauss Center for International Security and Law at the University of Texas, one of seven Minerva-funded, university-led research projects, which resulted in the establishment of the Climate Change and African Political Stability (CCAPS) programme. Results of CCAPS research have been very limited. Their methods follow a pattern of well-established, although narrowly focused use of an array of physical and some social variables to predict conflict patterns in Africa that may be related to certain climate drivers. http://minerva.defense.gov

national security implications of energy and environmental stress. In 2009, the US Navy created Task Force Climate Change to coordinate research and operational planning related to climate change impacts on maritime operations, especially in the Arctic. More recently, the DoD published its *Defense climate risk analysis* (DoD, 2021a) and the *Defense Climate Adaptation Plan* (DoD, 2021b), and the US Army released the first-ever *Army Climate Strategy* (Department of the Army, 2022) and follow-on *Army Climate Strategy Implementation Plan* (see Jacobson & Klippstein, 2022).

The US Congress has been less engaged, although both the House of Representatives and the Senate have held hearings on the security implications of climate change, and the several recent National Defense Authorization Acts include bipartisan efforts that directed the executive branch (and specifically the Intelligence Community and the DoD) to conduct periodic assessments of climate change consequences on national security, and adjust security policy and strategy accordingly.

Several NGOs in Washington, DC, remain engaged on climate change–security issues, including the –

- Center for a New American Security;
- Center for Naval Analysis;
- Center for Strategic and International Studies;
- Brookings Institute;
- American Security Project;
- Center for Climate and Energy Solutions; and
- Center for Climate and Security.

The 2007 report by the CNA Military Advisory Board (MAB) (a panel of retired generals and admirals), which articulated the security implications of climate change, is considered by many to be a landmark event in the US climate change conversation (Catarious, Filadelfo, Gaffney, Maybee & Morehouse, 2007). The MAB released an updated report in 2014, refining their findings from the 2007 report, emphasising the security implications of climate change, and urging action on the part of the US government (Goodman, 2014). The absence of legislative action on climate change, and the subsequent lack of funding for climate change–security research led to diminished think-tank activity in this area between 2007 and 2013, but the 2014 release of AR5, the second MAB report, and action within the executive branch generated renewed activity among NGOs focusing on climate change–security challenges. Within the United States, the federal government has placed significant, renewed focus on policy regarding climate change and security. In the past several years, areas that have received more comprehensive assessment include:

- Climate change–security implications for the Arctic'
- Better assessment of climate change consequences (such as sea level rise and severe meteorological events) on critical infrastructure;
- The emergent effects of human insecurity on national security interests (including migration); and
- More effective methods for bridging the science–policy divide on complex issues like climate change–security.

Although environmental security studies have evolved and broadened over the past three decades, significant gaps remain. There has been very little debate on theory underpinning environmental security research, especially since disciplines other than political science have entered the field. To date, much of the scholarly climate change–security research has been narrowly focused on establishing empirical, causal connections between environmental drivers and conflict, which, while important, has done little to answer more broad questions about security. Discussion can be found in scholarly literature and numerous reports by intergovernmental organisations. Very little research has been done on exploring the possible emergent effects of human insecurity or ecological degradation on national, regional, or international security. Significant gaps remain in understanding effective methods to bridge science and policy on the complex issues of climate change and security.

## Environmental Security Revisited: Time for a Fifth Phase?

There is little doubt that climate change poses the most significant global scale environmental security challenge of our age. That said, it is worth considering whether we have become too focused on the security implications of climate change at the expense of other environmental security risks, challenges, and opportunities. I suggest we would do well to expand our aperture, and revive and update many of the earlier concepts of environmental security. The past decade has seen a significant decline in the theoretical discourse surrounding environmental security, and the concept seems to have faded among strategic planners, analysts, and other practitioners, some of whom have shifted their attention almost exclusively to climate security. Another, more recent shift among some in the environmental security discourse is the discussion of ecological security, which is more concerned about the resilience of ecosystems themselves in the face of broader environmental change, although it can also include ecosystem consequences due to intentional degradation or destruction (McDonald, 2018; 2021). Ecological security seems to be an effort to emphasise focus on the natural environment, with less emphasis on more traditional security implications of environmental change.

At its most expansive definition, environmental security encompasses security (for people, societies, and the environment) ranging from the individual (or ecosystem) level to the state and international (or global system) level. Being too expansive with a definition of environmental security could lead to confusion or diluted efforts, which could lead to the very concept itself being heavily scrutinised or even becoming irrelevant. Given an appropriate framework, such an expansive definition, with a proper understanding and definition of what is meant by both environmental and security, could therefore provide a useful categorisation and foundation for both the academic and policy as well as practitioner communities. And, although research, discussion, and debate about environmental security has faded from the academic community over the past decade (in favour of climate security), it has not entirely disappeared from the policy and security communities. For example, the UN Environment Programme maintains an active focus on what they call "environment security," which is nearly synonymous with

traditional environmental security concepts.[7] Within the US Federal Government, at least two informal collaborative networks focused on environmental security have emerged: the Environmental Security Working Group, and the Federal Environmental Security Consortium. With this renewed emphasis, we may be on the cusp of a **fifth phase** of environmental security.

As we enter a new phase of environmental security research, debate, and practice, a clear definition of environmental security is important. One possibility is to draw on the roots of environmental security from previous phases. By combining elements of Levy (1995) and Barnett (2007), I propose that environmental security is the ability of individuals, groups, or states to adapt to, mitigate, or avoid environmental change without critical adverse effects – effects that significantly degrade the integrity, values, or well-being of the states, communities, or individuals. Such a definition incorporates elements of the original, state-focused definition of environmental security, but also includes important elements of human security (that affect community or state security). In addition to an updated definition of environmental security, I propose a framework for environmental security that captures key elements or categories of environmental security. Environmental security includes:

- **Adaptation** (by humans and societies) to environmental changes that adversely affect security;
- **Stewardship** of the natural environment, to include natural resources and energy resources;
- **Mitigation or prevention** of adverse effects on the environment due to defence or security activities or operations, and weaponisation of the environment;
- **Response** to environmental hazards or disasters; and
- **Peacebuilding and co-operation** (including conflict resolution) around issues related to the environment.

Underpinning such a framework is the need for robust data collection and analysis at all scales (from local to global), using qualitative, quantitative, and mixed methods, as well as sufficient policy, strategy, and planning at all levels of governance within the security sector. While certainly not a comprehensive framework, the above list captures most relevant elements of the aforementioned updated definition of environmental security. Future research and debate related to this definition and framework could include qualitative or quantitative data collection and analysis of past or ongoing environmental security issues, modelling of future environmental security scenarios, and case studies.

## Conclusion

In summary, environmental security discourse and practice spans a period of nearly three decades, but in the past decade, has faded in favour of a more narrow focus on climate security, at both a regional and global scale. Climate security, while an important, even dominant subcategory of environmental security, misses other aspects of environmental

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[7] See www.unep.ort/topics/disasters-and-conflicts/environment-security.

change that might relate to security. A renewed emphasis on environmental security, in the academic, policy, and security communities, is overdue. Such a renewed emphasis will facilitate a more comprehensive understanding of the relationship between the environment (including, but certainly not limited to, climate and climate change), and ideally lead to more holistic security policy and practice. By drawing on the lessons of the first four phases of environmental security research, as well as the extensive work over the past decade in the area of climate security, a new fifth phase of environmental security offers opportunities for influential research across many academic disciplines. Such research will inform better policy and security strategy, planning, and action.

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# ENDNOTES

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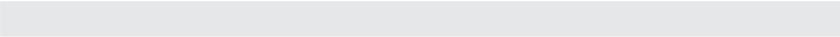
# Where did you hear that? Narrative Competition and Societal Instability in Burkina Faso

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## ABSTRACT

Coups do not occur randomly. They are the result of significant shocks, or triggers, to a societal system, which is especially catastrophic in societies with high levels of vulnerability. It is often in this context of high vulnerability that global powers act to gain influence throughout the world. Narrative competitions, or information campaigns, are becoming increasingly important as an approach to projecting influence at international scale. Socio-cultural and economic triggers of societal instability are critical spaces where narrative and indirect competitions occur. Explaining how competitors manipulate these country-specific triggers as part of an influence campaign is essential to understanding modern geopolitics.

The study on which this article reports, used the Modeling Dense Urban Networks analytical model to explain the influence of economic, geographical, and political changes on the opinion of the local population on crucial societal tipping points in Burkina Faso. Burkina Faso is a region with intense societal vulnerability due to economic inequalities, regional instability brought on by the ongoing conflict in the Sahel, significant environmental security issues, and a distrust of the government and the former colonial power, France. These internal factors of instability strongly influenced the two military coups in 2022. In addition to the internal factors of instability, Burkina Faso is an area of powerful competition between several global powers, each providing a narrative to manipulate societal opinion around these local issues of vulnerability to promote their influence in Burkina Faso at the expense of their adversaries.

**Keywords**: Societal Vulnerability, *Coup-d'état*, Burkina Faso, Geopolitics

## Introduction

Coups do not occur randomly. They are the result of a series of societal triggers that increase vulnerability in a country. One of the major influences on societal vulnerability is narrative competitions, or information campaigns, in which competitors, both domestic and international, seek to control the triggers of societal instability. Explaining how

competitors manipulate these country-specific triggers as part of an influence campaign is essential to understand modern geopolitics and political development within a country.

The current study used the Modeling Dense Urban Networks (MDUN) analytical model to explain the influence of economic, geographical, and political changes on the opinion of the local population on crucial societal tipping points in Burkina Faso. Burkina Faso (Figure 1) is a state in a region of Africa with deep societal vulnerability due to economic inequalities, regional instability brought on by the ongoing conflict in the Sahel, significant environmental security issues, and a distrust of the government and the former colonial power, France. These internal factors of instability strongly influenced the two military coups in 2022 (Africa Center for Strategic Studies, 2022). In addition to the internal factors of instability, Burkina Faso is an area of formidable competition between several local, regional, and global powers, each providing a narrative to manipulate societal opinion around these local issues of vulnerability to promote their influence in Burkina Faso at the expense of their adversaries. It was against this context of narrative competition that societal vulnerability increased in Burkina Faso leading to the coups of 2022.

By linking the input of the MDUN to the human geography of Burkina Faso, one can gain a complete picture of the rising level of vulnerability in Burkinabe society that led to the coups of 2022. The MDUN initially identified a desire for increased income distribution as a trigger of vulnerability in the country. As the second coup approached, the MDUN began to detect increased levels of instability surrounding issues of xenophobia, a need for safer communities, a need for more national sovereignty, and a lack of confidence in government. All of these MDUN dimensions can be explained by the growing conflict against violent extremist organisations (VEOs) in the Sahel region, along with a growing anti-French sentiment brought on by a growing dissatisfaction over the foreign control of the mining industry and increased Russian and Chinese information campaigns influencing public sentiment.



*Figure 1: Reference map of Burkina Faso*
*Source: Google (2024)*

## Societal Vulnerability and Change

Traditionally, most studies of societal vulnerability and resilience focus on environmental stressors, ineffective governance, and episodic environmental disasters. This is due to the dramatic nature of these and the instantaneous strain they put on a society. Societal vulnerability is crucial for risk management; however, there are different definitions and frameworks that assess societal vulnerability, and nuanced approaches are important to comprehend the dynamic and context-specific nature of vulnerability. Urban specialists focus on people's livelihoods and coping capacity, while disaster specialists focus on the vulnerability of individuals and critical institutions to disasters (Bull-Kamagna *et al.*, 2003:194). With increased susceptibility, vulnerable societies are more prone than less vulnerable societies to the negative impacts of natural disasters because of inadequate infrastructure and overall preparedness leading to higher rates of damage and casualties. While vulnerability analysis has become widespread, scholars, such as Adger (2006) and Turner *et al.* (2003), point out shortcomings in its reliance on generic quantitative methods that often fail to capture the complexity and context-specific experiences of diverse groups within a society (Adger, 2006; Turner *et al.*, 2003). Vulnerability is not equally distributed, and the social impacts of hazard exposure often fall disproportionately on the most vulnerable people in society (Cutter, Boruff & Shirley, 2003; Tapsell, McCarthy, Faulkner & Alexander, 2003:13). Vulnerability is not static but a dynamic concept that changes over time and space. This necessitates considering social-ecological interactions, such as how environmental stresses and socio-economic factors interact and exacerbate one another. For example, climate change can worsen existing economic inequalities, further increasing vulnerability for marginalised groups. Additionally, weak governance can amplify existing vulnerabilities by failing to provide adequate resources and support mechanisms (Blaikie, Cannon, Davis & Wisner, 2014).

In recent years, some scholars have started to apply the concepts of resilience and vulnerability to explain dramatic societal change. Aguirre sees vulnerability and resilience in societies as a 'dialectical duality' (Aguirre, 2007:39). These are two extremes in societal development, which takes place continuously without end, as societies are complex, evolving open systems. As a society experiences shock and bounces back, it evolves and develops new resiliency strategies. As this development occurs, new influences on vulnerability however develop that are not always visible or assessed by society. As emphasised by Frerks, Warner and Weijs (2011:116), resilience does not always return to a previous state of equilibrium.

The challenge of explaining complex social systems is to develop frameworks to assess the impact of stressors on societal vulnerability or resilience. Many scholars have used varying approaches to construct a framework, emphasising different aspects of society. Wilches-Chaux (1989) identifies several influences on vulnerability to include environmental, political, cultural, and economic consequences. Weichselgartner (2001:88) takes a slightly different approach, viewing the characteristics of vulnerability, considering pre-existing vulnerability, vulnerabilities that affect different social groups differently, and impacts of vulnerabilities at specific sites. This is built on by Christmann and Ibert (2012:2) in their identification of 'structurally induced vulnerability' in which vulnerability affects

people based on their socio-economic situation. With the impacts identified, Christmann and Ibert (2012:2) go on to emphasise that members are able to identify and acknowledge vulnerabilities in an effort to develop resilience.

Some scholars began to focus on social and economic aspects of vulnerability and resilience in society. Tanner and Williams (1981) identify five key aspects of societies to include economic aspects, such as production, technology, and adapting to change through education and science. Researchers also address political aspects in their framework, looking at supporting relationships among citizens, maintaining stability of social relationships, and managing conflict and pursuing goals in a society. This is echoed by Frerks *et al.* (2011:107) who define vulnerability as the result of bad governance, bad development schemes, and political or military destabilisation with a focus on political development.

This economic approach is contrasted with an environmental explanation. The authors While, Jonas and Gibbs (2004) agree that economic frameworks tend to be dominant in the discourse. They also emphasise the significance of environmental issues. From "river clean-ups" through redeveloping industrial sites for gentrification, to land use change as an influence on drinking water vulnerability (Mirhosseini, Farshchi, Noroozi, Shariat & Aalesheikh 2018), environmental aspects have a major influence on societal development. Richmond, Malcomb and Ringler's (2018:386) focus on household-level vulnerability, and the authors and identify six main key areas: food, water, energy, environment, livelihood, and health. These interconnected factors can significantly increase vulnerability, especially in poorly managed urban settings.

Putting economic and environmental qualities together is a defining aspect for studies that emphasise sustainability. Shen, Ochoa, Shah and Zhang's (2011:19) studied sustainable development plans for nine cities. In their subsequent analysis, they attempted to create a manageable model of sustainable development in cities by reducing the number of sustainable development dimensions to four, namely environmental, economic, social and governance elements. Once the authors had defined the dimensions, they applied the dimensions to the nine cities under study to look for areas of commonality and areas of departure. The result was what they view as a method to implement sustainable development programmes in cities at various levels of development.

Research on development that emphasises economic or environmental aspects of change, briefly mentions political, cultural, and social factors. Typically, the discussions of sociocultural factors are framed within the discussion of economic development or environmental reactions to economic development. These studies tend to minimise the importance of identity, political legitimacy, social networks, political penetration by government, and other factors that also strongly influence urban development. This gap in the literature was addressed in the current study through the construction of a model that emphasises sociocultural variables through the lens of a political development model.

Binder's (1964:625) approach to political development provides a basic model of political development that subdivides political development into five categories or networks

(production, identity, legitimacy, participation, and penetration). Scholars, including LaPalombara (1971) and Fierman (1991), who have worked with Binder's model have added a sixth category known as "allocation". Framed within the discussion of societal development, the impact of events that demonstrate the vulnerability and resilience of a society is the result of the continuous interaction of networks within the region and the continuous evolution of these networks and their interactions both within a society and to the larger global political-economic system. While influenced by external forces, these networks and interactions are strongly influenced by the local population (both residents and non-residents). As Giddens (1979) emphasises in his duality of structure, people change the societal networks and are changed as a result of interacting with the various networks. This duality needs to be at the heart of any analysis focusing on societal resilience and vulnerability. The six categories, defined by Binder (1964), all provide insight into urban development and work to organise the vast complexity that influences urbanisation.

## Coups as an Example of Societal Vulnerability

One of the most dramatic examples of human-induced vulnerability is military coups. Coups represent a breakdown of governance in a country. Wang emphasises that coups are likely to happen in countries with a strong tradition of the military dominating society (Wang, 1998:662). The importance of the military in society sets the stage for a coup, but the local conditions are the triggers that typically set the coup in motion. Hansen (2024:1) identifies four main triggers of coups in West Africa. She classifies the first two – political instability and economic problems – as traditional determinants that have been well studied in previous research. Economic factors are also echoed by Londregan and Poole (1990:177–178) in their conclusion that poverty is the one characteristic coups share. In addition to the two traditional triggers, the author (2024:1) adds **climate change** and **external impacts** as two new triggers of coups in the modern political environment. Hansen (2024:5) concludes that the frequency of coups in West Africa is the result of ineffective democratic governance and the inability of governments to promote liberty, safety, and progress. The deficiencies of governments lead to a legitimacy and allocation gap that juntas exploit to overthrow governments in the region.

Hansen (2024:7) mentions external influences as a major influence on the prevalence of coups in West Africa. International powers have vied for influence in Africa throughout the Cold War (1945–1991) and are now returning to compete for influence throughout the region primarily to access raw materials. Hansen (2024:7) mentions that West Africa saw a reduction in the number of *coups d'état* after the end of the Cold War. Within the past few years, corresponding to the rise of Russian influence in the region, the number of coups is once again rising (Ferragamo, 2023). This reflects the possible influence of foreign actors and information campaigns on political stability in West Africa.

## Burkina Faso: Vulnerability and Societal Change

The history of Burkina Faso is riddled with strife for power, protests, and revolutions. In the late nineteenth century, the French arrived in a region of minor kingdoms and

decentralised empires, and colonised what is now Burkina Faso as part of French West Africa. The French established a colonial administration focused on the resources in the country and relied on the labour of the Burkinabe people in agriculture and mining. Post-World War II calls for independence grew, and in 1960, the country gained its independence from France. Despite gaining independence, Burkina Faso continued to face the same challenges as the rest of the region, such as economic underdevelopment, social inequality, and political instability (Engels, 2018:363). The economic underdevelopment stemmed from inheriting an economy geared towards the production of cotton for export to other countries and with few other industries to diversify the economy (Bourdet & Persson, 2001). The lack of human capital and technical expertise limited the ability of the country to develop and manage its own industries. This was compounded by the lack of financial resources making it difficult to invest in infrastructure and other areas of the economy.

In response to these challenges, the government of Burkina Faso implemented policies aimed at promoting economic growth and development through investments of infrastructure, promoting education and technical training, and diversifying the economy (Bourdet & Persson, 2001; International Monetary Fund [IMF], 2012). These policies were centred on the idea of national self-sufficiency, with the goal of reducing dependence of the country on external forces, promoting internal development, reducing poverty, and improving access to basic services. Policies aimed at improving infrastructure development were promoted through investments in roads, bridges, and other infrastructure projects intended to improve transportation and communication across the country (Engels. 2018). One of the key economic policies during this period was the establishment of state-owned enterprises in key sectors of the economy. The government invested in industries, such as agriculture, mining, and energy, with the goal of promoting rural development, stimulating local production, and reducing imports (Bourdet & Persson, 2001; IMF, 2000). Another important policy was the promotion of education and training through government investment in the building of schools and universities. This investment created expanded access to education and training programmes aimed at development of technical skills, with the goal of developing a skilled workforce that could support economic growth and development of industries (IMF, 2005). While these policies were intended to promote economic growth and development, their effectiveness was limited by a range of factors, including limited financial resources and inadequate technical expertise.

The poor economic development of Burkina Faso is exacerbated by the social inequalities faced by its citizens. There is a wide gap between the rich and the poor, and unequal access to education, healthcare, and other essential services. Poverty remains a major issue in Burkina Faso, with around 40 per cent of the population living below the poverty line (World Bank Group, 2023). Women are confronted by many challenges in terms of social (in)equality. Despite constitutional guarantees of gender equality, women in Burkina Faso face widespread discrimination and violence (Kazianga & Wahhaj, 2013:541). They often have limited access to education, healthcare, and economic opportunities, and they are frequently subjected to early marriage, female genital mutilation, and other harmful practices. According to the United Nations, the literacy rate for women ages 15 and older in Burkina Faso is only 32 per cent, compared to 50 per cent for men (UNESCO, 2021). Another inequality is between those who live in rural areas compared to those in urban

areas. Rural communities face greater poverty, limited access to education and healthcare, and limited infrastructure compared to urban areas. The literacy rate in urban areas tends to be higher than in rural areas due to limited access to educational opportunities, lack of resources, poverty, and a shortage of qualified teachers in the latter (Rupley Bangali & Diamitani, 2013:9). The government has adopted policies aimed at promoting social development, such as investments in education, to include addressing gender inequality, and implemented programmes in rural areas aimed at increasing enrolment, providing access to educational materials and resources, and training teachers. Progress has been slow, however, and social inequality remains a significant challenge for Burkina Faso. The Gini coefficient for Burkina Faso remains among the lowest fifteen countries in the world at 45,2 (World Economics, n.d.). The economic instability feeds into the growing political instability.

The country has experienced political instability and violence throughout its history. From its independence from France in 1960 to the present day, Burkina Faso has experienced several coups and military regimes with coup and coup attempts occurring in 1966, 1980, 1982, 1983, 1987, 2014, 2015, and 2022). Burkina Faso continues to face challenges today, including the rise of violent extremist groups (VEOs) and ethnic conflicts, particularly in the north and east of the country (Bado, 2015). The threat of terrorism is linked to several factors, including poverty, political instability, weak governance, and the influence of extremist groups in the region. The terrorist groups operating in Burkina Faso include the Group for the Support of Islam and Muslims (GSIM), Jama'at Nasr al-Islam wal Muslimin (JNIM), which is affiliated with Al-Qaeda, and the Islamic State in the Greater Sahara (ISGS) (Bureau of Counterterrorism, 2021). These VEOs have carried out numerous attacks on civilians and security forces, leading to a humanitarian crisis and displacement of thousands of people (Bado, 2015; Bureau of Counterterrorism, 2021). The internally displaced population increased from 50 000 in December 2018 to 270 000 in August 2019 (International Commission of the Red Cross [ICRC], 2019). Burkina Faso 'is experiencing one of the fastest-growing displacement crises in the world, marked by violence, poverty, food shortages and the growing impact of the climate crisis' (UN High Commissioner for Refugees [UNHCR], 2022:n.p.). In addition to internal displacement, the regional instability due to ongoing periods of political unrest or armed conflict in the countries near Burkina Faso, such as Mali and Niger, has led to an influx of over 90 000 Malian and Nigerien refugees into Burkina Faso. The attacks have also had a significant impact on the economy and development of the country, as religious sites, businesses, and infrastructure have been targeted, and foreign investment has been discouraged. The government of Burkina Faso has implemented a range of measures to address the threat of terrorism, including increasing security forces and working with international partners to strengthen border security and intelligence sharing (Bado, 2015).

Violence and instability have continued to escalate as GSIM blocked access to several cities in northern and eastern Burkina Faso by attacking and destroying infrastructure, further affecting access to food, water, health, and education (Ochieng, 2022). In January 2022, Damiba led a military coup based on the ineffective handling of the ISGS and GSIM militants in the country. Continued dissatisfaction, as ISGS and GSIM militants continued to launch deadly attacks against civilians, led to a second military coup commanded by

Captain Ibrahim Traoré, which ended in September 2022 with the resignation of Damiba and declaration of Traoré as the new president (Booty, 2022). Since November 2022, the rising violence targeting civilians based on ethnic and religious identity, led by non-state armed groups, in Burkina Faso has driven over 60 000 Burkinabe people to neighbouring countries (Sy, 2023). Most of those fleeing were women and children who had also been subjected to gender-based violence stating, 'when the armed groups came, everything changed' (Sy, 2023, n.p.). These challenges have increased the fragility of an already destabilised region struggling with security challenges and food insecurity.

## The MDUN Sociological Situational Awareness Modeling Tool

The Modeling Dense Urban Networks (MDUN) tool was developed by Perceptronics Solutions to enhance situational awareness by visualising and explaining societal vulnerability (Grannis, 2023). Unlike a mere incident tracker, the MDUN goes beyond merely identifying such events; instead, the MDUN expects that inciting incidents will happen regularly, and instead evaluates and forecasts the probable impact they would have when they inevitably do.

Given the focus of the MDUN on sociological situational awareness, the inputs of MDUN comprise geo-tagged and time-stamped sociocultural, socioeconomic, and socio-political data about the perceptions, beliefs, values, and experiences of the population. To measure societal resilience, the MDUN computes an entropy index, extracting micro-information about emergent disorder, where a low entropy value suggests a more stable situation while a value near the maximum suggests that the societal system is vulnerable to being triggered and collapse, and needs to be reconstituted (Liang, Hu, Chen & Zhou, 2017; Liu, Stanley & Gao, 2016). The MDUN uses these multiple measures as inputs to an artificial intelligence routine, which learns the best weightings for each input by training against 320 known events worldwide. This allows the MDUN to understand a population's sentiment and resulting behaviour.

The MDUN conveys this understanding of societal dynamics across 12 sociocultural, economic, and political dimensions, which together offer a nuanced understanding of societal vulnerability. These dimensions were conceived using a factor analysis model on data from dozens of countries across all geographic regions of the world (Grannis, 2023). Notably, the 12 MDUN dimensions complement the six dimensions identified by Verba (2015:7), Fierman (1991), and Wolfel, Richmond and Grazaitis (2017:40), providing quantitative metrics to the analytical framework of political development. The MDUN displays the 12 dimensions in a radar chart in which each of the 12 dimensions originates from a central point separated from each other by equivalent angles. A terminal circular edge, equidistant from the central point, connects all axes. The central point represents complete stability while the terminal edge represents a critical phase transition being transgressed, indicating an event triggering a social catastrophe. A polyline connects each dimensional axis at a point indicating the current state of the societal area on that dimension.

## Using the MDUN to Model Burkinabe Society

Beginning in May 2022, the current authors, along with the Perceptronics team, used the MDUN to analyse Burkina Faso and to explore the sociocultural fabric of the country and potentially determine the major factors, which influenced the societal vulnerability, which led to the January 2022 coup. Using the MDUN, over 20 different sets of data (see Table 1) – ranging from local groups collecting sentiment data to large international organisations – were considered.

*Table 1: Data sources used in conjunction with the MDUN to analyse Burkinabe society*

- ACLED conflict data project
- African Development Bank Group
- Afrobarometer
- Burkina Faso Displacement Center
- Burkina Open Data Initiative
- Catholic Agency for Overseas Development
- Global Health Advancement Organization
- Humanitarian Data Exchange
- Internal Displacement Monitoring Center
- Oxfam
- Oxford Poverty & Human Development Initiative
- UN Development Program

- UN Economic Commission for Africa
- UN Office for Disaster Risk Reduction
- UN Office for the Coordination of Human Affairs
- UN Office for the Coordination of Humanitarian Aid
- UN Refugee Agency
- US Agency for International Development
- World Bank
- World Food Programme
- World Health Organization
- World Values Survey

From 2 May to 25 July 2022, weekly assessments of the sociological situational awareness in Burkina Faso were made using these observed data. Figures 2, 3 and 4 display the assessments for 2 May (the beginning), 13 June (halfway), and 25 July (the end).
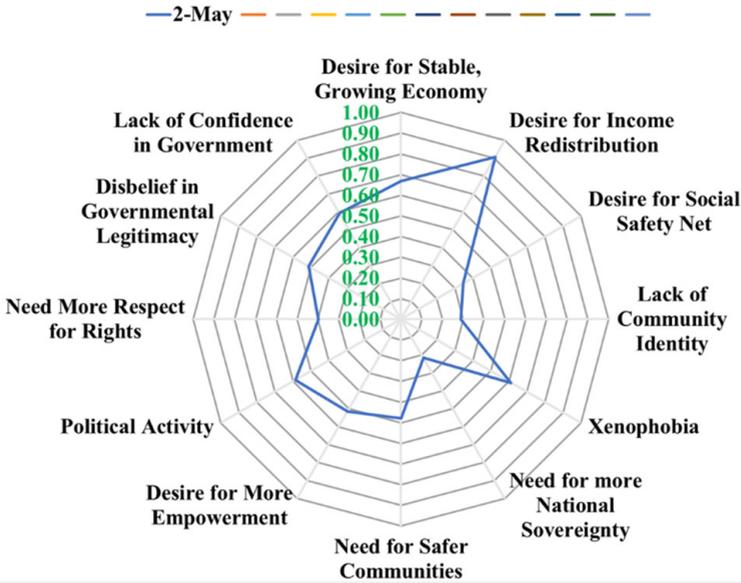
*Figure 2. Burkinabe society as measured on 2 May 2022*

Figure 2 shows that, in early May, four months before the second coup, Burkinabe society was very concerned about income redistribution, so much so that this concern was approaching criticality at the time. Local citizens were desiring better income distribution, and the xenophobia score was possibly influenced by discontent over mining operations being controlled primarily by foreign companies (Trade Commissioner Service, 2022). In addition, the presence of 400 French Special Operations Forces in Burkina Faso even after Operation Barkhane had officially ended might also have contributed to the 2022 xenophobia score. The Burkinabe government finally asked them to leave in January 2023. Three of the Sahelian countries involved in Barkhane (Mali, Niger, Burkina Faso) used pointed anti-French rhetoric during the time the xenophobia score was increasing. If the level of this concern transgressed the criticality threshold, this would have suggested that the population would act to deal with this, acting with sufficient resolve to destabilise Burkinabe society. This could have included civil unrest and riots, land occupation and seizures, or insurgencies and wholesale revolution. At the same time, however, most other factors were no more than moderate, with some higher than others but none approaching the key criticality edge.
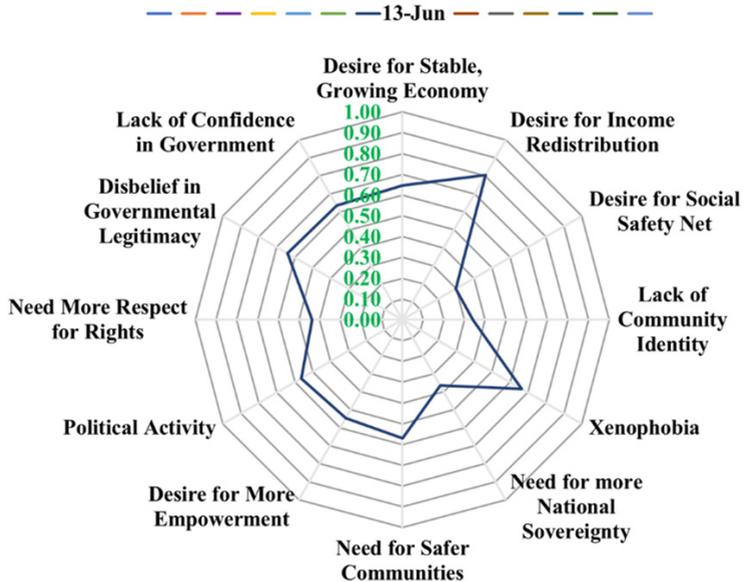
*Figure 3: Burkinabe society as measured on 13 June 2022*

Figure 3 shows that, in mid-June 2022, the picture appeared to be stabilising somewhat. The desire for income redistribution, while still high, was moving away from criticality. By large-scale appearances, Burkinabe society was moving towards stability.

As 2022 progressed, the results from the July (Figure 4) and September (Figure 5) radar plots show the impact of a declining security situation in the country and the beginnings of a crisis of allocation (security) and legitimacy. Due to this decline in personal security, local citizens began to lose trust in the government (legitimacy), resulting in higher vulnerability scores for "Lack of confidence in government", and "Want more national sovereignty". As these scores approached critical, societal change became more likely.
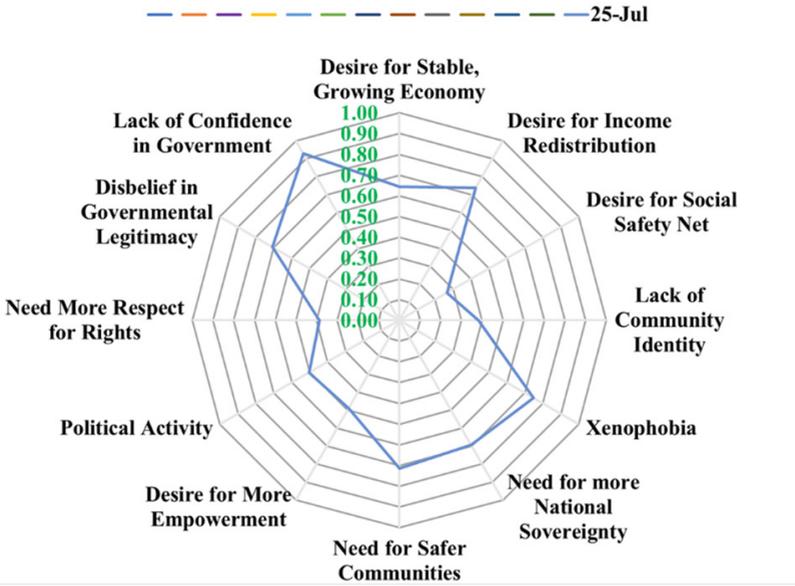
*Figure 4: Burkinabe society as measured on 25 July 2022*

Figure 4, however, shows that by the end of July, new threats emerged. While the desire for income redistribution continued to recede slowly, the population's lack of confidence in their government was nearing criticality, and several other factors were becoming increasingly concerning as well.

## *Using the MDUN to Forecast Future States of Burkinabe Society Successfully*

The above figures show the analysis by the MDUN of observed data at the time. Beyond merely evaluating the current situational awareness, on 13 June 2022, the research team used the MDUN to make seven month-by-month predictions (from July 2022 to January 2023) showing deteriorating conditions in Burkina Faso. These predictions were all made by projecting current trends, not at the macro-societal level, but at the micro-level, which generated them. The MDUN projected what would happen if individuals' perceptions, attitudes, and behaviours continued to evolve unchecked in their current fashion.
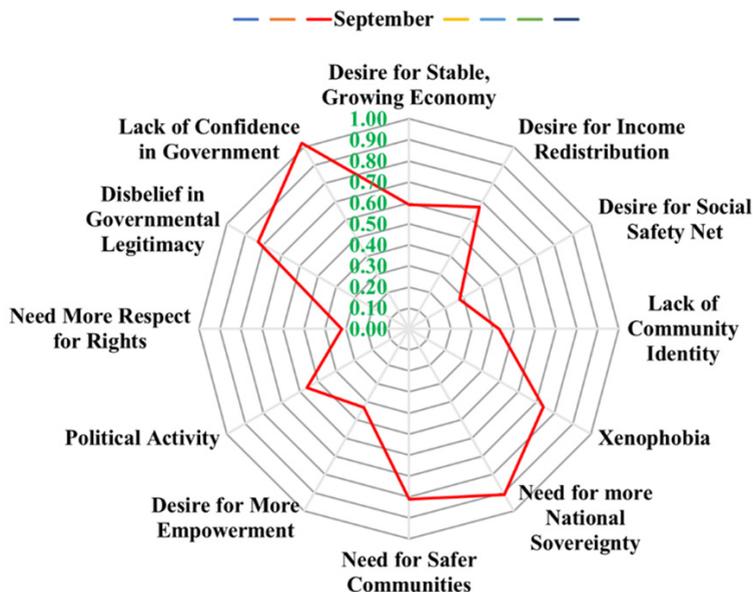
*Figure 5: Expected state of Burkinabe society on 30 September 2022 given evolving individual perceptions and attitudes (forecast on 13 June 2022)*

Figure 5 illustrates the result for 30 September 2022. It is at once apparent that a lack of confidence in government had crossed the criticality threshold. Other concerning factors include disbelief in governmental legitimacy, the need for national sovereignty, the need for safer communities, and xenophobia. Together, these factors suggest that, by September of that year, the government would have lost people's support due to a palpable loss of confidence in its ability to protect the population from outsiders, both nationally and locally. Five months earlier all these factors had been no more than moderate, and the need for national sovereignty was very low.

This was the MDUN's projection done on 13 June 2022 (Figure 3). Fast forward to the predicted month, and on 30 September 2022 (Figure 5), Burkina Faso found itself in the throes of a military coup that forcibly ousted the established government, exactly as the MDUN had predicted three and a half months earlier. At the time the MDUN made these predictions on 13 June 2022, the large-scale scenario looked completely different. In three months, the lack of confidence in government had risen about 40 per cent from a moderate level to destabilising. Even more surprising, the need for national sovereignty, arguably the driving factor, transitioned in that same period from being relatively stable to critical.

These patterns were already present in the perceptions, beliefs, and attitudes of the population on the ground. The MDUN did not assess inciting incidents or actions taken

by leaders but rather evaluated the evolving perceptions and attitudes of the general population, what they perceived and experienced, and how these perceptions and experiences would likely affect their decisions to act. The MDUN discovered the micro-level signs of entropy, emergent disorder, already present in the population (Figures 2–4) and projected them forward, showing when they would become so great that the state could not survive (Figure 5). The actual incident itself – which formally ignited the coup – was less relevant than the fact that the population had reached a point at which they would react to any inciting incident.

Interestingly, all the predictions made on 13 June 2022 were done on the assumption that the situation for individuals on the ground would continue evolving as it was, at a time when the situation appeared to be stabilising. If leaders had taken appropriate actions, they would probably have been able to alter the course but, by only being aware of the macro-level and not the individual-level perceptions and attitude, they did not perceive the evolving crisis.

## Societal Change in Burkina Faso

In 2022, the Burkinabe military conducted two coups. The MDUN analytical model visualised the societal factors that created societal acceptance of the September coup. To explain the context of rising societal vulnerability leading to the September coup, we used Binder's 1964 model of political development as an explanatory framework (see Verba, 2015:7). Several scholars (see Fierman, 1991; Wolfel *et al.*, 2017) have used Binder's model as a framework to explain societal political development. Binder's model comprises six dimensions of political development: political presence (political penetration) (see Verba, 2015), identity, political legitimacy, political participation, production, and allocation, as discussed below.

### Political Presence

"Political presence" refers to the ability of a government to disseminate its messages and actions to the local population. (Binder, 1964). Political presence has been low in Burkina Faso for the past several years. Haavik Bøås and Iocchi (2022) characterise the Burkinabe government as weak since 2014 (Haavik *et al.*, 2022:318). In addition, Hansen (2024:34) believes that local strongmen, religious organisations, and the state have used militias, rebel groups, jihadists, and the military as their private armies to settle disputes over resource access and to promote their influence, or political presence. Most of this projection of power was for personal gain, and provided the local population little communication of their goals as agents of influence in the country.

Recently, the coup leaders have started to push an agenda for their government. Initially, Engels (2022:315) noted that coup occurred to 'put the country back on track' and 'restore the territorial integrity and sovereignty'. The focus of this message of restoring territorial integrity and sovereignty was directed at the insurgencies in the north of the country, and would resonate with the local population who have expressed concerns about security for the past several years, i.e. since 2019

At international scale, the Burkinabe government has reoriented its geopolitical alignment away from France, and towards China and Russia. In 2018, Burkina Faso switched its diplomatic recognition from Taiwan to the People's Republic of China (PRC). This was accompanied by a large investment by the PRC into Burkina Faso. Even after the coup, the Burkinabe government has maintained a close relationship with China.

In recent years, the Traoré government has grown its relationship with Russia. This includes humanitarian aid, an agreement to build a nuclear power plant in Burkina Faso, cultural exchanges, and most recently, security forces to support the Burkinabe government. On 16 January 2024, Africa Development Forum (2024b) reported the creation of a paramilitary Africa Corps that would replace the now defunct Wagner Group as Russia's main armed presence on the continent. Two weeks later, a report by Poland's Center for Eastern Studies (see Bartosiewicz & Zochowski, 2024) reported that 100 members of the Africa Corps landed in Burkina Faso in late January, with an additional 200 to arrive later. This roughly equals the number of French Special Operations forces that were present until asked to depart in January 2023.

The departure of the French, the removal of diplomatic relations with Taiwan, and the increased cooperation with China and Russia demonstrate a new geopolitical orientation for Burkina Faso. While these actions have garnered attention outside of the country as a geopolitical reorientation, the influence of these new relationships is seen in the country as a tangible action to separate Burkina Faso from French influence. For several years, the governments of the country have struggled to promote a coherent message and follow through with actions to help improve the security conditions in the north. The current government however seems to be out of touch with the population, especially in the north.

*Identity*

Identity, as measured by "Lack of community identity" in the MDUN, is not a significant factor on societal vulnerability in Burkina Faso. While not significant, the influence of identity however increased throughout 2022. Two main aspects of Burkinabe societal development help explain the influence of identity on societal vulnerability. Both aspects are influenced by growing xenophobia as seen in the MDUN measures from 2022.

First, there is a strong anti-French sentiment in West Africa in general. This anti-French sentiment is growing in Burkina Faso. Historically, according to Hansen (2024:35), the French government traditionally used soft power activities, such as cultural exchanges, referred to as *diplomatie culturelle* by the French government, as an instrument of foreign policy. This benefits the French long-term political and economic objectives by attempting to create a shared identity between the French and their colonies through a shared language and culture, two critical elements of identity. In modern Burkina Faso, the local population is beginning to challenge the supremacy of French culture and chart their own course of development.

Into the void that is created by the decline in a French–African identity is a renaissance of Pan-Africanism. Pan-Africanism started in the early twentieth century to strengthen

unity across all people of African descent throughout the world, and promote self-reliance and self-government, especially in Africa. During the 1990s, the movement included a move towards an Afrocentric, more aggressive, anti-European version of Pan-Africanism, which looked to push out traditional European influences from the region (Hellem, 2021). In recent years, the movement has been co-opted to shift political influence away from traditional colonial powers to new suitors for influence in the region, particularly Russia.

The Russians have used their social media influence campaign to promote their interests in the region and discredit other potential influencers they see as competitors. Pan-Africanism is one of the key narratives being pushed by Russia to break traditional colonial linkages (Afrocentrism) and allow Russian companies to fill the void. The Russians turned their large social media influencing campaign on Africa, through Yevgeny Prigozhin's Internet Research Agency (Stanford Cyber Policy Center, 2019; US Department of State, 2022). In Burkina Faso, Eckles (2024) chronicles how Russian social media used legitimate concerns of the Burkinabe population to build a campaign to blame France and present Russia as a saviour. They also promoted the authoritarian coup leaders, such as Traoré, who look to collaborate with Russia.

In addition to social media, Russia has funded and supported modern Pan-African leaders to promote Pan-African and Afrocentric identities to weaken European influence further. One example is Kemi Seba. Kemi Seba is a French–Beninese writer and political activist who focuses his attention on anti-colonialism in West Africa and the reliance on the West African CFA franc (Le Cam, 2023). Seba's connections to Russia have been well documented to include funding from Prigozhin and invitations to several Russian–African summits in Russia (Coakley & Vetch, 2022; Roger, 2023). In the wake of the departure of Burkina Faso, Mali and Niger from the Community of West African States, there are hints that all three states are considering dropping the CFA franc. *Jeune Afrique* quoted Nigerien Transitional President Tiani, 'There is no longer any question of our states being France's milk cow. Money is a sign of sovereignty. We are in the process of recovering our complete sovereignty' (Jeune Afrique, 2024, n.p.).

The decline of French cultural influence in the region created an identity void and increased vulnerability in the region. Various actors are stepping in to promote anti-French sentiment through modern interpretations of Pan-Africanism and Afrocentrism. Russia seized the opportunity to exert its influence by supporting leaders in the Pan-African movement and pushing disinformation through social media. This led to increased vulnerability in Burkina Faso evidenced in increased vulnerability as seen in xenophobia.

## Political Legitimacy

"Political legitimacy" refers to the local population's belief that the government legitimately represents their interests and deserves their loyalty. As the coup approached, political legitimacy became one of the most critical dimensions of vulnerability as measured by the MDUN. By the time of the coup, the "Lack of confidence in government" reached criticality in terms of vulnerability. This followed the inability of the Burkinabe government to control the insurgency in the north.

The perpetrators of the coup took advantage of two major grievances within Burkinabe society. First, the coup leaders made the most of anti-French sentiment to gain legitimacy with the local population. According to Hansen (2024:35), 'young people all over West Africa have animosity for France which the coup makers have taken advantage of in their quest for power. The population blames France for involvement in government deficits'. By ending French operations in 2023, the Burkinabe government hoped to gain support in the country and increase their legitimacy.

Second, the inability of the former president to deal with the insurgency in the north and to provide security for the population was a major influence on the success of the coups. According to Engels (2022:316), the "*putschists*"[8] used the government's inability to deal with the deteriorating security situation in the north as justification to overthrow the government. Similarly, Hansen (2024:2) notes that surveys of the local population showed that most Africans still support democratic institutions, but public trust has declined to their government's inability to 'live up to democratic expectations'. Hansen (2024:2) goes on to note that the government's inability to combat poverty and insurgencies led to a 'democratic crisis', or a crisis of legitimacy, in the country. Finally, Hagberg et al (2023:108) contrasted the success of the 2022 coups to the resistance to the September 2015 coup. They attribute the differing levels of support and legitimacy to the exhaustion of the population suffering from insecurity, and the hope of the local population that an "unconstitutional change" (i.e. a coup) would help solve the security situation. This demonstrates the connection between allocation and legitimacy in Burkina Faso. The lack of security led to a crisis of legitimacy in the government in 2022 creating an environment of support, or at least ambivalence, towards the coups.

*Political Participation*

Traditional approaches of political participation do not seem to be significant factors of vulnerability in Burkina Faso. The MDUN score for political activity was around 0,5, and declined to 0,4 after the coup in 2022 This, however, does not completely explain political participation in the region where the score for "Need for more national sovereignty" moved from 0,4 to 1,0 (critical). This increase could imply a focus on international aspects of national sovereignty as opposed to local feelings of sovereignty. Given that the number of Burkinabe killed by extremists has tripled since Traoré took power (in 2022), it is in the interest of the regime to divert focus away from internal security to issues of international and regional sovereignty (Africa Development Forum, 2024a). The Russian disinformation campaign in this respect has been an important enabler for the Traoré regime.

Burkina Faso does not have a long history of robust political participation. The country has seen at least ten coups since 1966, and at least another six attempted coups. The country also conducted eight elections since independence in 1960, most of which were not considered free or fair. In fact, only one election, 2015, was considered free and fair, although the results of the election were in doubt (Africa Research Bulletin, 2016). The 2015 election was only the second time in the history of the country that a civilian was elected president.

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[8] *Putschists are the leaders of the coup.*

Prior to the coups in 2022, there was optimism for increased opportunities for political participation. Freedom House (2023) believes the elections in 2015 and 2020 laid the foundation for continued development of democratic institutions in the country. In 2021, the main political participation concern was security during the 2020 election (Freedom House, 2023). Due to the ongoing insurgency, several regions were not able to participate in the 2020 election. This is cited by Freedom House (2023) as a major reason for the lower global freedom score. The optimism was lost in 2022 when two coups occurred in rapid succession.

It is against this backdrop of limited fair elections that a low wanting to be politically active score can be explained. With more coups than elections, the average population does not seem to value their role in the political process. Hagberg *et al.* (2023:108) note the lack of strong popular resistance to the coup. Most people hoped that rapid unconstitutional changes would bring a solution to the security concerns in the country (Hagberg *et al.*, 2024:108). As in the past, people stood by, and hoped coups would bring about improvements in Burkinabe society.

While there seems to be little desire for political participation in the local political process, the Burkinabe population seems to be quite passionate about promoting national sovereignty. Most of the discussion on national sovereignty focuses on the role of France in the region. Russia has exploited this desire for national sovereignty to promote their geopolitical interests in the region. Hansen (2024:34) notes the rise in pro-Russian sentiment, specifically Wagner Group-related, social media sites after the first coup. Hansen (2024:34) states that, as a form of political participation, the Russian flag has become a symbol of the declining influence of France in its former African colonies. Hansen (2024:34) further observes that, following the coup, numerous Russian flags were raised, by the Burkinabe population in the capital, demonstrating the significant role of the local population in the political process. While Burkinabe citizens do not typically participate formally in the electoral process due to a history of being isolated from political change in the country, they have a strong anti-French sentiment that was exploited by Russian influencers to gain geopolitical influence in the region.

*Production*

Prior to the coup, production was the most important influence on societal vulnerability in Burkina Faso (see Figure 2). A strong desire for income redistribution and a desire for a stable, growing economy are two of the highest scoring variables in Figure 2. Two of the main factors that influence the importance of production on societal vulnerability are employment status and foreign control of the mining sector. This foreign control of the mining sector could also explain the slightly elevated nature of the xenophobia vulnerability score prior to the coup. Unemployment was officially reported at 5,1 per cent in 2020, 5,4 per cent in 2021, and 5,1 per cent in 2022 (Trading Economics, 2023). While "official" data sources should always be treated with scepticism, the trends in the data show that the three-year period of unemployment data from 2020–2022 was the highest during the preceding eight years. In addition to rising unemployment, self-employment is extremely high in the country. Hansen (2024:30), for instance, reported

that 85 per cent of workers are self-employed. In addition, it is estimated that 70 per cent or the Burkinabe labour force is employed in the informal sector (International Organisation of Employers, 2023:2). While the specific numbers can be debated, the fact that a large proportion of Burkinabe production comes from self-employed or informal sources cannot be debated. Both self-employment and informal activities are notoriously unreliable sources of employment, leading to increased negative public sentiment and societal instability and vulnerability.

In addition to the employment structure, the mining industry is one of the largest influences on the economic development in Burkina Faso. Burkina Faso is one of the major producers of gold, manganese, and zinc in the region Some sources list Burkina Faso as the fifth largest gold producer in Africa (Trade Commissioner Service, 2022). While this has the potential to be a positive influence on societal production and resiliency, the lack of government oversight, foreign influence, and corruption makes it a source of negative sentiment and vulnerability rather than an influence of resiliency. The seven largest mining companies in Burkina Faso are all foreign owned (four Canadian, one British, one Australian, and one Russian). This leads to minimal local control of the resources and very little wealth distribution throughout the country. The lack of local control could be an influence on the increased sense of xenophobia as seen in the public sentiment before the January coup (Figures 2, 3 and 4). In addition, most of the relationships and contracts between the Burkinabe government and mining companies are opaque and lack oversight. Those contracts are also being terminated as governments change, causing significant problems with political and economic development in Burkina Faso. In addition, the mines tend to operate outside the authority of Burkinabe law. The Bureau of International Labor Affairs (2022) reported that up to 50 per cent of the labour in the gold mines are under the age of 15, working as forced labour in hazardous conditions. In addition, when the junta closed the borders of the country after the coup in 2022, this order did not apply to the mining companies (Africa Intelligence, 2022).

Environmental degradation also has a major impact on economic production in Burkina Faso, especially on agricultural production. Examples of human activities that lead to the deterioration of the environment include soil erosion and climate change. These processes reduce agricultural productivity and threaten food security. Environmental degradation is a multi-faceted issue in Burkina Faso, leading to increased social vulnerability throughout the country. Societal vulnerability often increases due to inequalities in access to resources. The Burkinabe economy is primarily based on agriculture, with sorghum, millet, maize, and rice being the main crops produced for local consumption (Adger, 2006). Cotton alone accounts for around 73 per cent of Burkinabe export revenues, making it one of the top five cotton producers in Africa. Livestock is also a significant contributor to exports (Simonsson, 2005). All forms of agriculture and livestock production are mostly dependent on rainfall and, therefore, extremely vulnerable to droughts.

Cotton production is a significant contributor to soil degradation, exacerbated by overgrazing and deforestation. Soil degradation ultimately leads to decreased agricultural productivity, which in turn jeopardises food security and livelihoods for a predominantly agrarian population. Environmental factors, such as climate change and environmental

degradation, contribute to societal vulnerability by disrupting livelihoods. Vulnerable communities are often located in hazard-prone areas, and lack the resources and infrastructure to cope with and adapt to environmental risks; however, wealthier farmers can often mitigate environmental degradation with the use of fertiliser (Cutter *et al.*, 2008:601). Poor farmers, on the other hand, may have a smaller negative environmental impact on the land, but do so at the expense of their economic development and well-being.

As the amount of fertile land decreases, the competition for scarce resources in Burkina Faso intensifies. Furthermore, climate trends and variability are contributing to the rise in environmental degradation. This leads to increased social tensions and displacement as the migration of displaced farmers could lead to increased competition for formal and informal employment opportunities. In addition, in rural regions, climate change is leading to conflicts between farmers and herders for land use and access to water (Climate Diplomacy, n.d.). This conflict has been exacerbated due to drought and livestock encroachment onto cultivated lands.

Being in a semi-arid region, Burkina Faso is highly vulnerable to climatic stressors, such as droughts. While there is an established wet and dry season in the north and south, there is an extreme variability in the amount and timing of the rainfall each year (Simonsson, 2005). Being prone to recurrent droughts, this poses challenges to agriculture, food security, and water resources. In the case of agriculture, the droughts exacerbate the soil degradation of the overused land leading to reduced crop yields. In terms of food security, the reduced crop yield affects food availability and scarcity, leading to an increase in food prices and a reduction of demand for labour creating a job shortage (Simonsson, 2005). It is the most vulnerable population, the poor, who will face the greatest impacts of climate change due to their already limited access to resources.

*Allocation*

Prior to the coups, allocation was the primary influence on societal vulnerability. In the MDUN model, this is displayed as "Desire for income redistribution". According to Hansen (2024:27), while Burkina Faso experienced steady economic development from 1990 to 2013, this development did not trickle down to the average citizen. Most of the wealth was concentrated in the hands of the native elites and foreign companies. Along with food insecurity brought on by global supply chain disruptions, this led to increased societal instability as local citizens were generally frustrated with the lack of income distribution leading up to the coups.

As the coups approached in 2022, the allocation of security became a more significant factor of societal vulnerability. Along with global supply chain issues, local terrorist activities increased global food insecurity (Hansen, 2024:27). The International Rescue Committee (IRC) (2023) reported that, at the time, an estimated 3,3 million citizens in Burkina Faso were suffering from hunger. In addition to food insecurity, safety also declined in several regions. Hansen (2024:31–32) reported that Burkina Faso had a doubling of organised political violent incidents between 2020 and 2021, and an 80 per cent increase in fatalities related to political violence to close to 2 600 deaths in 2022. In

addition, up to 1,5 million people have been internally displaced because of the violence in the county.

In addition, the educational system was collapsing. Engels (2022:316) reported that over 120 attacks on schools were reported, and 2 500 schools were closed due to the security situation in 2022. This number continues to rise after the coup, with a 44 per cent increase reported in 2023 (Africa Center for Strategic Studies [ACSS], 2023). The ACSS (2023) estimates that, at the time, 25 per cent of the schools in the country were not operating. This has given rise to a significant decline in the allocation of education for the youth, and also shows the lack of security provided by the local government. All of these imply a significant rise in the "need for safer communities" dimension on the MDUN, almost rising to a level of criticality.

The security situation did not improve after the coups. According to the ACSS (2023), the number of people killed by militant Islamic violence has tripled since the coups. In 2023, the ACSS (2023) estimated that 8 600 people were killed in violence linked to militant Islamic groups, representing a 137 per cent increase in violence compared to the previous year. Not only is the amount of violence increasing, but the spatial extent of the violence is also increasing. The ACSS (2023) estimated that the violence occurred on 6 975 square kilometres of land in Burkina Faso, an increase of 46 per cent from 2022 estimates.

To provide security at local level, locally organised self-defence groups have taken up security roles typically provided by government. Several groups, including the Dozos, Ruggas and the Koglweogo ("bush guardians") (now known as Volontaires pour la défense de la patrie [VDP] or Volunteers for the Defense of the Homeland) have transformed from local farmer and herder groups into self-defence organisations (Hagberg *et al.*, 2023:110–111). The rise of local organisations demonstrates the vacuum of security created by the Burkinabe government, and begins to explain the rising discontent among the Burkinabe population that led to the collapse of the government.

In addition to local groups stepping into the security vacuum, Russia and China also continue to provide support for security in Burkina Faso. In January 2024, Russia deployed 100 people to provide security to the president and the population (Lechner & Eledinov, 2024). These are likely members of the new paramilitary Africa Corps that will perform the functions of the disbanded Wagner Group (Bartosiewicz & Zochowski, 2024). China also provided 900 security cameras in the country (Agence France Press, 2021). In addition, China provided 400 000 doses of the Sinopharm Covid-19 vaccines to Burkina Faso (National Library of Medicine, 2021).

## Conclusion

Societal vulnerability is a complex process that sits at the nexus of several socio-cultural, economic, and environmental factors. To understand vulnerability, one needs to understand the triggers of instability and how those triggers are manipulated by local and global actors to increase their interests at the expense of their competitors. The reliance on information campaigns and narrative competitions is becoming an increasingly significant aspect of

modern geopolitics and multidomain operations throughout the world. Countries generally prefer to project power in a non-kinetic manner, and information campaigns are one of the preferred methods of promoting influence throughout the world.

In the case of Burkina Faso, economic, security, and identity triggers led to a crisis of political legitimacy in which the local population accepted regime change brought on by the coups. The MDUN provides an example of how to assess the impact of specific categories of triggers on societal vulnerability. When the MDUN is paired with a human geographic analysis of specific conditions in a region, a more complete picture of vulnerability is achieved, and specific issues of vulnerability are identified, assessed and explained. As the new coup leaders transition from seizing power to governing, they have to start disseminating their message to both the local population and the global community. An important part of this message is addressing the triggers of vulnerability that provided the conditions that allowed them to seize power in the first place. The failure to address and resolve these triggers will lead to another crisis of legitimacy, as seen in the second coup of 2022, and a continuation of high levels of societal vulnerability.

Coups, like other methods of regime change, do not occur randomly or in isolation from local conditions. They are a reaction to societal vulnerability brought on by triggers of societal instability. Both internal and external actors utilise triggers of vulnerability as part of a larger information or narrative campaign to promote their interests at the expense of competitors. To understand modern political development – both internal and geopolitical – one must understand the local conditions of a society, and how vulnerability is affected by conditions in a specific place.

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# ENDNOTES

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[9] Amy Richmond is a Professor at the United States Military Academy, with a passion for investigating the correlation between environmental resources and human well-being. She adopts an interdisciplinary approach to develop frameworks that can be applied across various geographic locations. Amy utilises open-source data, conducts interviews, and leverages Geographic Information Systems to explore household-level vulnerability drivers that are often overlooked in regional and global indices. Her academic work includes publications on models for environmental security and household vulnerability in both rural and urban areas of Sub-Saharan Africa. Amy holds a Ph.D. in Geography and an M.A. in Energy and Environmental Studies, both from Boston University, as well as a B.S. in Systems Ecology from the State University of New York (SUNY) College of Environmental Science and Forestry. Her research interests focus on the role of environmental resources in economic development, the impact of ecological resources on vulnerability, environmental security, resource scarcity, and human-environment interactions in areas such as water, food, and energy vulnerability. A dedicated researcher, Amy is committed to creating meaningful and positive change through her work.

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# Illicit Activities and Border Control in Ngoma, Namibia

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## Abstract

Ensuring border security and control is essential for maintaining national peace and stability, as it involves security forces monitoring border areas to safeguard communities. The Ngoma border faces difficulties, sharing boundaries with Zambia and Botswana. The current study explored key illegal activities, their effects on the community, and the existing border control measures and challenges. Despite the established border control efforts, significant illicit activities persist in Ngoma. Using a purposive sampling approach, the research obtained data through individual interviews and focus groups discussions with members of the Namibian Police Force, the Namibian Defence Force, Customs and Immigration officials, and community residents. The data were analysed through thematic analysis, revealing that, despite existing control measures, activities, such as poaching, illegal fishing, smuggling, and unauthorised border crossings, remain prevalent. The findings further indicate that border control in the area appears ineffective, largely due to a shortage of adequately trained personnel, limited screening equipment, and a lack of essential resources, such as patrol vehicles and aerial surveillance systems. Based on these insights, border control at Ngoma can be enhanced by integrating modern technologies, such as biometric identification, automated license plate recognition, and drones to improve efficiency and security. Furthermore, implementing training and capacity-building programmes for border law enforcement and customs officers would be advantageous. Engaging local communities through community policing also strengthens relationships between law enforcement and residents. Additionally, regional collaboration with neighbouring countries could help reduce illicit border activities and build stronger diplomatic connections.

**Keywords:** Border Security, Illicit Border Activities, Ngoma Area, Namibia, Human Trafficking, Illegal Migration

## Introduction

Borders are lines separating two countries (Fischer, Achermann & Dahinden, 2020). One of the main forms of border demarcation is fencing along the borderlines of inland countries (Leutloff-Grandits & Wille, 2024). The current borders of Africa are a product

of a complicated history marked by colonialism, political conspiracy, and power struggles (Thomson, 2022). Many of these borders were drawn without any consideration for pre-existing cultural or ethnic boundaries (Sciortino, Cvajner & Kivisto, 2024). Unfortunately, this has resulted in numerous conflicts and challenges for the continent, especially for the border communities. These challenges include political instability, violence, economic disparities, ethnic tensions, and religious differences (Harff & Gurr, 2018). Border demarcation comes with issues of land and grazing rights, citizenship, and territory consideration as well as the involvement of several groups with different interests in borders (Byrne, Nightingale & Korf, 2017). It is therefore important to consider the varied interests of different parties, as they pose a threat to the security of the countries, particularly in border areas (Byrne, Nightingale & Korf, 2017).

The border areas, although often thought of as mere geographical dividers, can provide opportunities for a range of illegal activities to thrive. These activities include illegal crossing, smuggling of goods, human trafficking, and illegal wildlife trade (Rohilie, 2020). According to Vilks and Kipane (2018), illicit activities are activities not allowed by law or the social customs of a country. These activities pose a significant threat to national security, socio-economic stability, and public health. Illicit activities are driven by various factors, such as poverty, unemployment, and limited economic opportunities (Vitvitskyi, Syzonenko & Titochka, 2022). Such activities are prevalent in regions close to country borders, such as Ngoma in Namibia. Ngoma shares borders with Botswana and Zambia, a transnational region positioned on the geographical, political, and social margins of a succession of pre-colonial, colonial, and postcolonial states (Jacobs, 2014; Ndumba, Shikangalah & Becker, 2021). It falls within the Caprivi strip, which has routinely been cut off and re-inserted into Namibia due to political tension before Namibian independence in 1990 (Zeller, 2009). After independence, the border demarcation separated families in the area as the same family could find itself in Namibia with another half in Botswana leading to complex cross-border dynamics. As a result, the movement of both nationals visiting their families on the respective sides of the borderline became frequent. These movements provide both opportunities and challenges for Namibian and Botswana authorities in exercising control of their border areas.

Ngoma is faced with several illicit activities, such as illegal fishing, illegal crossing, smuggling of goods, and wildlife poaching, due to its geographical location. Moreover, its rural setting is associated with a high level of poverty, unemployment, and limited economic opportunities, which lead to an increase in crimes and illicit practices. This trend necessitates the need for border control.

Border control is defined as a means of control measures regulating the movement of people and goods as provided for in the national laws and regulations of nations (Fischer, Achermann & Dahinden, 2020). Wagner (2021) defines border control as a situational awareness of the border security measures that impede the ability of criminal activities effectively. To uphold the national laws and border regulations, Namibia has three border protection units, namely the Department of Immigration Control and Citizenship (DICC) under the Ministry of Home Affairs, Immigration, Safety and Security; the Namibian Agronomic Board (NAB); and the Special Field Force (SFF) under the Namibian Police.

Additionally, the Namibian government enacted the Immigration Control Act (No. 7 of 1993) and the One-Stop Border Posts Control Act (No. 8 of 2017) as some of the legislation guiding border control in Namibia.

- The Immigration Control Act (No. 7 of 1993) serves '[t]o regulate and control the entry of persons into, and their residence in, Namibia; to provide for the removal from Namibia of certain immigrants; and to provide for matters incidental thereto'.
- The One-Stop Border Posts Control Act (No. 8 of 2017) aims '[t]o provides for the conclusion of agreements with adjoining States on the establishment and implementation of one-stop border posts; and to provide for incidental matters'.

Understanding the efficacy of border control measures in combating illicit activities in Ngoma is vital for enhancing security and stability in the area. Countries have measures, such as border patrols, inspections, and border post-checking, to combat illicit activities (Simmons & Kenwick, 2022). The current study analysed the nature of illicit activities in the Ngoma area and the consequences of these activities on the communities. It outlined the border control measures, identified the gaps and challenges encountered by law enforcement agencies, and proposed recommendations for improving border control measures in the area. This article firstly reports on the literature applicable to the study, then it explains the data and methods used to gather information for the study. Thirdly, the findings are discussed, and the article concludes by offering recommendations to improve border control and monitoring at Ngoma.

## African Borders

Literature indicates that African countries are increasingly facing the daunting task of managing their borders in ways that secure their territorial sovereignty and integrity (Kamidza, 2017). While the continent has put some efforts into managing border issues, border security in Africa remains a serious concern. African border security issues are unique when compared to other regions of the world, as they face increased volumes of cross-border trading and movements of people in search of greener pastures (Ombara, 2021). This is the result of economic growth, urbanisation, and organised crime activities that continue to put enormous pressure on African border control systems. While this is true, only a few African countries have actively implemented border security strategies that secure and promote peaceful border movements. This lack of security measures has largely contributed to the prevalence of threats, such as cross-border crimes, human trafficking, smuggling of illegal goods, and money laundering (Omoniyi, 2023). These realities give urgency to African countries to put in place effective border management systems that would minimise border tensions and, at the same time, promote joint enforcement and surveillance efforts. There is therefore a need for infrastructural development, collaborations, improved communication, and information exchange to promote a sense of security and well-being across borders.

*Factors Influencing Border Security in Africa*

Scholars, such as Carter and Poast (2017), Kacowicz, Lacovsky and Wajner (2020), as well as Zou, Bhuiyan, Crovella and Paiano (2024) highlight the prevalence of illicit border activities in various regions worldwide, emphasising the adverse effects on security, governance, and economic instability. In Africa, several dominant factors are found that hinder border security, such as the lack of cooperation, technology, and corruption (Fakhrzad, Yazdi-Feyzabadi & Fakhrzad, 2024; Motseki & Mofokeng, 2022). In the African context, cooperation, and coordination among stakeholders in border security are minimal at local, regional, and national levels. For example, at a local level, border management efforts are mainly focused on the security sector personnel, and the local communities are left out despite their knowledge of the border area (Udosen & Uwak, 2021). At a national level, there is also little to no integration among different divisions of immigration, customs, police, military, and intelligence (Hobbing, 2016). This has been found to hinder effective border security efforts.

At a regional level, border control is observed among border countries that need to work together to enhance security by sharing intelligence information and undertaking joint border patrols among others (Wagner, 2021). As observed by Minnaar (2022), border control requires coordinated effort at all levels to ensure effective border security and control. As well as the advancement of technology, it has become necessary for developing nations to adapt to the changing landscape of technology. The lack of technology was therefore identified as one of the hindering factors in terms of border security and control – especially in African countries (Kuteyi & Winkler, 2022). The incorporation and adoption of technology in border security and control allow for the rapid detection and interception of illicit goods, as well as the collection, organisation, and dissemination of data. In many developed countries, the integration and use of advanced technology in border security and control has revolutionised the way illicit activities are detected and addressed (Blundell, 2020). These technologies include tools and devices for border surveillance, such as high-resolution cameras, drones, and sensors, which provide real-time insights into suspicious activities. In the same light, biometric scanners verify travellers' identities and detect their backgrounds (Blundell, 2020).

Besides co-operation and technological improvement, corruption was also found to be a concerning issue that could undermine the effectiveness of security measures and facilitate various illicit activities. As cited by Ortiz (2021), bribery and corruption are often witnessed among border personnel in their interaction with the offenders . This prevalence of corruption in border control agencies is attributed to a lack of supervision and monitoring mechanisms, low salaries, and poor working conditions, a lack of proper training in border control, and a lack of border regulations and procedures (Klopp, Trimble & Wiseman, 2022). In many developing countries, corruption is aggravated by low remuneration, poor infrastructure, poor working conditions, and a lack of capacity (Chikanda & Tawodzera, 2017). In Namibia, for example, border posts are understaffed, and they lack modern tools and devices for effective border policing, inspections, and checks. Addressing these challenges to uphold the integrity of border control systems requires collaborative efforts between national institutions, law enforcement agencies, community members, and international partners.

*Case Study: Namibia–Botswana Border Dispute*

Borders provide points of contact and opportunities for interactions between countries (Namibia shares borders with Angola, South Africa, Zambia, Zimbabwe, and Botswana), but they can also be a source of conflicts and tension. In the Ngoma area, which is an area on the border with Botswana, several disputes have been observed over the years, such as the ownership of Kasikili/Sedudu Island and the conflict over wild animals crossing the border. Le Roux (1999) highlights the tensions between Namibia and Botswana over Kasikili/Sedudu Island ownership. While the border was determined by the special agreement known as the Anglo–German Treaty signed in July 1890, the current border dispute persisted until 1996 due to conflicting perceptions and positions at the International Court of Justice (ICJ). The case was concluded in 1999 in favour of Botswana, and the court ruled that the island formed part of the territory of Botswana. This resulted in both countries increasing their security along the borders leading to insecurity amongst inhabitants living close to the borders. The outcome of the case culminated in political consequences as well as social and legal dilemmas that have impeded the cross-border management and security strategies between the countries. This necessitated the need for enhancing cross-border and regional connectivity, primarily through collaborations and setting up infrastructure (Maritz, Le Roux & Van Huyssteen, 2024). This was essential for promoting regional integration and enabling sustained economic growth for both countries (Maritz *et al.,* 2024). Improved connectivity between neighbouring countries facilitates trade, increases accessibility, and consequently reduces disparities between countries within the region (Bonuedi, Kamasa & Opoku, 2020).

## Materials and Methods

In this section, the study area, methods and sampling design, data analysis, and ethical considerations for the study are discussed.

*Study Area*

The current study was carried out in the rural area of Ngoma, which is located at the latitude of -17.8833 S and longitude of 24.7167 E in the far north-eastern part of Namibia, formally referred to as the Caprivi Strip. It is one of the border posts between Namibia and Botswana, where traffic crosses the border at Ngoma Bridge over the Chobe River (Figure 1).
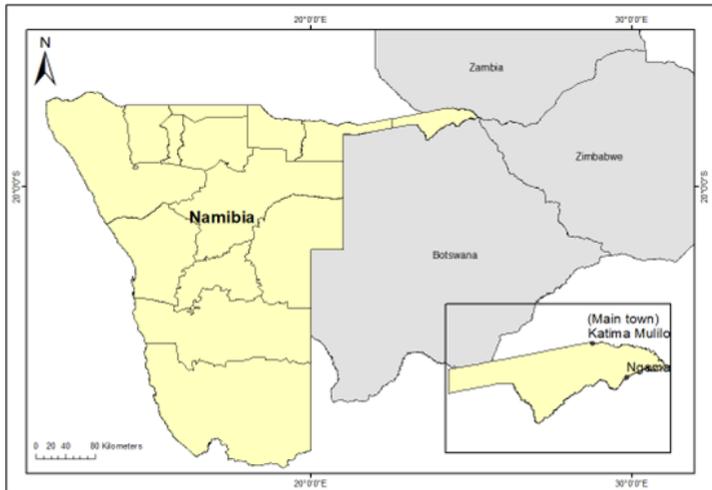
*Figure 1: Study area map of Ngoma area in the Zambezi region in Namibia*
*Source: Author's own compilation.*

The region comprises a conservation area rich in wildlife, such as buffalo, lions, and elephants, and local communities benefit from both land and river resources (see Figure 2). The area attracts tourism that contributes significantly to the economy of the country and employment.



(a)                                                          (b)
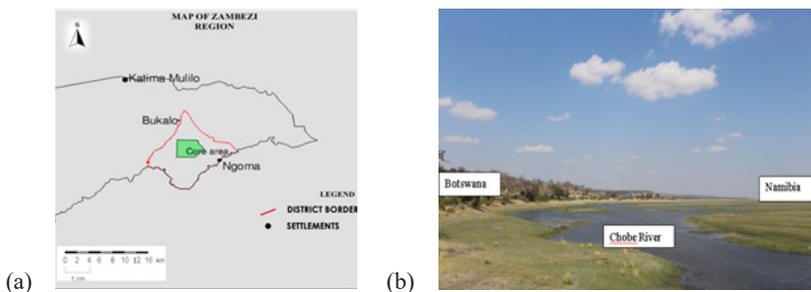
*Figure 2(a): Study area map of Ngoma area in the Zambezi region in Namibia*
*Figure 2(b): Chobe River that demarcates the border between Namibia and Botswana*
*Source: Author's own compilation Picture taken by the authors during data collection.*

The area experiences human–wildlife interaction and conflict between residents and animals, as it is adjacent to the Chobe National Park in Botswana. Wild animals roam freely along the border area and between villages, threatening the lives of the locals.

*Methods and Sampling Design*

To explore the illicit border activities in the Ngoma area, a qualitative approach was used. The approach provided the opportunity for the elaboration of opinions that might not have been possible with other forms of data collection (Poth, 2023). The study employed desktop study, field observation, individual in-depth interviews, and focus group discussions (FGDs) with relevant stakeholders, comprising border officials, law enforcement agencies (NAMPOL [Namibian Police Force] and the NDF [Namibian Defence Force]), and community members. By combining these methods, the study gathered in-depth data, enabled data triangulation, and facilitated flexible engagement with participants to gather their insights, as recommended by (Poth, 2023). The researchers interviewed a total of 52 participants who were directly or indirectly involved in border security and law enforcement.

A purposive sampling technique was used to select participants based on their knowledge and understanding of the subject matter under investigation (Poth, 2023). Participants were selected either because they were representative of the sociocultural group where they had been living for at least five years, or because they were security or law enforcement officials assigned to border security and patrol. Moreover, the selection of participants was based on the roles that each group played in border security in the Ngoma area at the time, years of experience in border control, life experiences in the community, and duration of stay in the community. The NDF and NAMPOL (Namibia Police Force) participants were purposively selected based on their deployment in the area for border patrol and control. Particularly, the Marine Corps in the NDF formed part of the informants as they were expected to have the necessary experience and understanding of border security issues in the area where they had been deployed in the area for the past four years to guard the border area. In the same manner, community members who had been living in the area for at least five years were sampled. The researchers also interviewed customs and immigration officers who had been working at the border office for at least five years.

A total of 52 participants took part in the study of which 20 participants were from the Namibian Marine Corps in the NDF, 14 were from the Special Field Force in NAMPOL, 8 were from customs and immigration, and 10 were community members as shown in Table 1.

*Table 1: Description of participants and the rationale for selection*

| Description of participants | Number of participants | Rationale for selection |
|---|---|---|
| Community members (Ngoma) | 10 | The community members offered deep insight into the activities taking place in the area based on their daily activities, which revolved around the area under study, and they were inhabitants of the area. |

| Description of participants | Number of participants | Rationale for selection |
|---|---|---|
| Customs and immigration officials | 8 | Customs officials carry out border inspection and checking of transit goods and travel documents. They were therefore deemed to be informative regarding border inspection and checking. |
| NDF members (Namibian Marine Corps) | 20 | The NDF provides support to NAMPOL in strengthening border security in the area. |
| NAMPOL members, Special Field Force (SFF) | 14 | The SFF directorate has the mandate to secure the Namibian borders. They are deployed country-wide to guard the borders. |
| **Total** | **52** | |

Of the 52 participants, 12 were interviewed (three community members, three Customs and Immigration officials, two NDF members, and four NAMPOL members). The interviews were face to face, and lasted between 30 minutes to an hour each. The remaining 40 participants took part in the FGDs (FGD) which lasted between 45 minutes to 1,5 hours. A total of five FGDs were conducted:

- One with members of NAMPOL (10 participants);
- Two with members of the NDF (nine participants each);
- One with officials from Customs and Immigration (five participants); and
- One with members of the community (seven participants).

## *Data Analysis*

The data collected from the individual interviews and focus groups were analysed using thematic analysis. The method involved identifying, analysing, and reporting the identified themes, and interpreting them to deduce meaningful information (Clarke & Braun, 2017). Through the thematic content analysis procedure, the responses from the participants were collated, reviewed, and examined, and important phrases were highlighted by assigning codes in the ATLAS.ti software program. Through an inductive approach, these codes were sorted and categorised into groups and units of significance that were further coded into sub-categories. These sub-categories were reconstructed, re-classified, and grouped to develop themes and so to obtain meaning for the dataset. Consequently, significant themes related to illicit border activities in the Ngoma area emerged and were described accordingly. This process provided the basis for the researchers to use their knowledge and experience to identify patterns and similarities to bring meaning to the data.

## *Ethical Consideration*

All procedures performed in this study followed the research ethical standards of the University of Namibia (UNAM). These standards align with the amended 1964 Helsinki

Declaration (Kurihara *et al*., 2024). Before conducting the interviews and FGDs, ethical approval was obtained from the Ethics Committee at UNAM. In the same manner, written informed consent was obtained from the participants before the interviews and FGDs, and for capturing of images and graphics. The study upheld the right to privacy throughout the study, and the participants were allowed to withdraw at any stage of data collection.

## Results and Discussion

In this section, the findings from the data analyses were grouped and discussed in the following subsections: Nature and extent of illicit activities in the Ngoma Area, consequences of Illicit activities on Ngoma community and border control measures and their challenges.

### *Nature and Extent of Illicit Activities in the Ngoma Area*

This section highlights the nature and extent of illicit activities occurring in a border are, namely the Ngoma area. It concludes by summarising ways of combating these activities. From the findings, the participants indicated that the prominent illicit activities occurring in the area at the time were carried out by Namibian and Batswana nationals. These illicit activities included poaching, illegal fishing, illegal border crossing, and smuggling of goods which was confirmed in a report by the Namibian Police (2022). These activities are driven by high levels of unemployment, poverty, access to affordable goods in neighbouring countries, inadequate border patrols, and a lack of police visibility in the area (Mabuku & Adewale, 2022). It is in this regard that community members see the need to have regulations in place to monitor and regulate such activities. Although these activities are frequently occurring in the area, participants indicated that only a few cases are documented and recorded because most of the activities go unnoticed. This observation is in line with the crime statistics report (see Table 2) received from NAMPOL indicating a few cases were recorded over three years (Namibian Police, 2022).

*Table 1: Statistic of illicit activities in the Ngoma area from 2019 to 2021*

| Gender | Age | Country of origin | Crime committed and/or incidents | Date of arrest |
|--------|-----|-------------------|----------------------------------|----------------|
| Male | 26 | Namibian | Found in possession of cannabis | 14/10/2019 |
| Male | 37 | Motswana (Botswana) | Possession of an elephant tusk, contravening the Controlled Wildlife Products and Trade Act (No. 9 of 2008), section 4(1)(a) | 12/12/2019 |
| Male | 45 | Namibian | Found in possession of cannabis | 22/12/2019 |
| Male | 33 | Namibian | Found in possession of cannabis | 05/03/2020 |
| Male | 30 | Namibian | Found in possession of cannabis | 29/03/2020 |
| Male | 22 | Namibian | Found in possession of cannabis | 16/06/2020 |

| Gender | Age | Country of origin | Crime committed and/or incidents | Date of arrest |
|---|---|---|---|---|
| Female | 38 | Namibian | Possession of tobacco products, contravening the Tobacco Products Control Act (No. 1 of 2010), section 18(1)(a) | 11/09/2020 |
| Male | 26 | Motswana (Botswana) | Found in possession of cannabis | 06/11/2020 |
| Male | 31 | Namibian | Found in possession of cannabis | 02/02/2021 |
| Male | 42 | Namibian | Found in possession of cannabis | 23/07/2021 |
| Male | 44 | Namibian | Possession of an elephant tusk, contravening the Controlled Wildlife Products and Trade Act (No. 9 of 2008), section 4(1)(a) | 05/09/2021 |
| Male | 31 | Motswana (Botswana) | Contravening the Customs and Excise Act (No. 20 of 1998) sections 9, 14, 91, 94.<br><br>Contravening the Import and Export Control Act (No. 30 of 1994) | 12/07/2019 |
| Male | 30 | Motswana (Botswana) | Contravening the Immigration Control Act (No. 7 of 1993) section 29(5) | 02/12/2019 |
| Male | 21 | Motswana (Botswana) | Illegal entry into Namibia at a place other than a port of entry | 13/01/2020 |
| Male | 28 | Motswana (Botswana) | Illegal entry into Namibia at a place other than a port of entry | 13/01/2020 |
| Male | 42 | Motswana (Botswana) | Illegal entry into Namibia at a place other than a port of entry | 27/01/2021 |
| Male | 25 | Motswana (Botswana) | Illegal entry into Namibia at a place other than a port of entry | 18/08/2021 |
| Female | 32 | Motswana (Botswana) | Illegal entry into Namibia at a place other than a port of entry | 20/08/2021 |
| Male | 23 | Motswana (Botswana) | Illegal entry into Namibia at a place other than a port of entry | 05/10/2020 |

*Source: Namibian Police (2022).*

Moreover, Table 2 shows that there were 19 cases recorded over the three years involving both Batswana and Namibian offenders. Out of these 19 cases, about 89% of the crimes were committed by males in the age range of 30–39. The gender differences could be due to cultural beliefs that encourage women to stay home and care for their families while men go out to work and provide for their families. This argument is also supported by

the gender-role theory, which argues, 'gendered differences in crime rates result from differences in gender roles, identities, and processes of socialisation' (Pleck, 2018:24).

The participants further indicated that many criminal activities go unnoticed because of a lack of patrol in the area due to insufficient vehicles, and limited manpower to patrol and make arrests if need be. This aligns with findings by Mabuku and Adewale (2022). Additionally, the results show that community members are at times not coming forth to report offenses occurring in their vicinities. A law enforcement participant stated, 'sometimes policing is a collaborative effort, but these locals sometimes are hiding most of the offenses committed in the area'. On the other hand, community participants claimed that, even if they report the offenders to the police, nothing much is being done; hence, they are discouraged from reporting. Participants confirmed this by stating, '[i]n most cases even if we report, the police do not show up. So why should we continue reporting the cases?'

The limited number of recorded cases along the border can also be attributed to the fact that the Botswana government is known to have strict measures in terms of law enforcement and border control measures (Nakale, 2024). An example is the ungazetted "shoot-to-kill" anti-poaching policy introduced to protect Botswana wildlife from poachers (Nakale, 2024). The policy has resulted in 30 Namibians and at least 22 Zimbabweans being killed in Botswana during anti-poaching operations (Tau, 2020). These killings may have instilled fear in the communities, and possibly resulted in a low number of cases recorded in the area. Over the years, the "shoot-to-kill" policy has caused diplomatic tensions between Namibia and Botswana (Tjitemisa, 2021).

## *Poaching*

Participants indicated poaching as one of the prevalent illicit activities in the Ngoma area, as this area is located close to the Chobe National Park in Botswana. The area is home to a diverse range of wild animals, such as elephants, buffalo, giraffes, hippos, crocodiles, lions, leopards and many others. The Ngoma area falls under the Kavango–Zambezi Transfrontier Conservation Area (KAZA TFCA), a multinational conservation area that promotes the protection and free movement of wildlife and allows for the sharing of resources between countries (Kalvelage, 2021; Lines, Bormpoudakis, Xofis & Tzanopoulos, 2021). The conservation area stretches over the Kavango and Zambezi River basins, covering parts of Angola, Botswana, Namibia, Zambia, and Zimbabwe (Lines *et al*., 2021).

While the conservation area protects and promotes free wildlife movement, it may also result in a "transit route" for wildlife, leading to increased human–wildlife conflict due to frequent encounters. This is because wildlife often grazes near riverbanks, villages, and agricultural fields making them a threat to human livelihoods. These interactions result in wildlife becoming easy targets for poachers. Poaching is also known to be prevalent in remote areas where monitoring is limited, and the chances of being caught are lower. As a result, poaching poses a significant threat to wildlife populations in the Ngoma area. This, in turn, affects tourism negatively and reduces revenue generation in the country.

While poaching is common in the area, the participants indicated that, due to a lack of transport vehicles, which hinders frequent patrols, only a few cases are recorded and arrests of offenders made (Namibian Police, 2022).

## Smuggling of Goods and Illegal Crossing

The regular movement of goods and people is a common practice between bordering countries. This is no exception for the Ngoma border where goods and people are constantly in transit for different purposes. These movements become opportunities for the smuggling of illegal goods between Namibia and Botswana. With the growing demand for various types of goods for resale or personal use, individuals usually attempt to smuggle them in or out of the country either because they are attempting to avoid paying customs duties or because the items are illegal products. The participants indicated that the most common smuggled good is cannabis, intended for personal use and resale as recorded in Table 2. The increase in the use of cannabis could be because there is a high rise in its use within the African community, (USAID, 2013) resulting in higher demand. Such a demand promotes market opportunities for criminals to smuggle and sell the product for better returns on their investment. Participants indicated that offenders are caught during minimal border patrols and surprise inspections at the border office. The smuggling of illegal goods is a punishable offense in Namibia, as it contravenes customs regulations, taxation, and other legal requirements (Customs and Excise Act, No. 20 of 1998). The participants highlighted that the offenders mainly use undesignated border crossings and remote areas with limited surveillance of their illicit activities.

According to the reports released by the Namibian Police, it was observed that illegal entry into the country is a common activity, mainly carried out by individuals from Botswana. These individuals enter Namibia at locations other than designated ports of entry due to a lack of valid travel documents or involvement in illicit activities with a desire to avoid being caught. As indicated by the participants, the lack of equipment to scan and detect goods or people is a challenge and makes it difficult to control and monitor goods exiting and entering the country as well as the validity of entries.

## Illegal Fishing

The Ngoma area has a unique geographical location that allows boat access to over 100 kilometres of prime water of the Chobe and Zambezi Rivers and the many productive waterways found in between (Bakane, 2016). The Chobe River is home to a multitude of fish species and inland fish resources that have supported the Ngoma and neighbouring communities for centuries. While these communities have lived off these resources for years, the introduction of fisheries resource management, which restricts fishing activities at times, has affected the common way of life in the communities. The restriction is implemented by the Ministry of Fisheries and Marine Resources (MFMR), which is responsible for monitoring, control, and surveillance (MCS) of both inland and maritime resources in Namibia. According to Kar and Chowdhury (2024), the MCS refers to plans, strategies, and policies geared towards the efficient management of inland and marine resources, particularly fisheries.

Moreover, the MFMR derives its mandate from the Marine Resources Act (No. 27 of 2000), which aims to provide adequate control over inland and marine resources through sustainable use and efficient conservation of resources. To achieve this, the MFMR has enacted several measures, including the restriction of the fishing season. The restriction of fishing is enforced to allow juvenile fish stocks to breed, although it affects those who depend on fishing as their only source of income. Since communities find it hard to sustain their livelihoods during this period, this restriction has forced them to engage in fishing even during the closed season leading to what is termed "illegal fishing". The illegal fishing referred to here, involves fishing outside of the permitted fishing period but also the type of fishing gear used. The participants indicated that locals engage in illegal fishing during the closed season by fishing at night using unauthorised fishing gear, such as mosquito nets and other illegal fishing gear. The participants further indicated that poverty and high rates of unemployment have contributed to these illegal activities as they serve as a means of food and income for local communities. As previously mentioned, the lack of equipment and manpower to carry out regular patrols and surveillance of the border area also seems to contribute to the frequent occurrence of illegal fishing in the area.

Overall, combating illicit activities in the area requires the involvement of several stakeholders comprising local authorities, community members, security clusters, and conservation organisations to collaborate and enhance border control efforts as well as to ensure the sustainable use of natural resources. Additionally, there is a need for community policing in monitoring and control of border areas to strengthen border security. Furthermore, engaging community members in security education programmes would empower stewardship toward their community and its resources. This will encourage sustainable use of resources and at the same time reduce the dependence on illicit activities for income. Moreover, with the assistance of its law enforcement agencies, government needs to invest and upgrade its infrastructure to increase patrols, surveillance, and technological innovations to deter illicit activities in the area. Technology, such as surveillance cameras, both stationery and mobile, could be one of the possible investments to be prioritised in the border area.

Lastly, collaboration with bordering counterparts is also crucial to address cross-border poaching, smuggling of goods, and illegal crossing. These strategies not only support conservation initiatives but also mitigate the consequences of illicit activities and preserve the rich natural heritage of the Ngoma area for generations to come.

## Consequences of Illicit Activities on Ngoma Community

This section narrates the consequences of the identified illicit activities for the local economy and the community. The findings on the consequences experienced in the area include community instability and social disruption. This usually happens when members of the community are involved in illicit activities and are reported to authorities resulting in conflict, tension, and mistrust among them.

As previously discussed, smuggling of goods and illegal crossing are some of the common illicit activities that occur in the Ngoma area. These activities were found to threaten the

local economy, and encourage unfair competition with smuggled goods. This results in loss of income and job opportunities for the local people. Moreover, the smuggled goods reduce government revenue from taxes and tariffs; thus, harming public services and infrastructure development, as pointed out by Edwards, Fadiran, Kamutando and Stern (2024). These activities also threaten the security of the communities, as illegal migrants are often involved in criminal activities that involve livestock theft and housebreaking (Kooper, 2024; Mubiana, 2023). This in turn encourages the local people to team up with the perpetrators, giving rise to an increase in violent activities and insecurity in the area. This can also lead to social fragmentation, mistrust, and a decline in social harmony within the communities. Moreover, participants indicated a lack of co-ordination between local law enforcement agencies as well as between Namibian citizens and people from the neighbouring countries (Botswana and Zambia). This is highlighted by Mubiana (2023) who refers to a lack of co-ordination among the security clusters, such as NAMPOL, the NDF, and immigration, and intelligence officials.

In the same manner, the participants indicated that inadequate border control facilitates the spread of illicit activities, which, in the long term, undermine border control legislation and weaken governance structures (Libanda, 2022). Participants also highlighted that it is a challenge to live along the border, as there seems to be constant conflict between Botswana law enforcement officials and the locals. This was confirmed by participants who stated, '[w]e are exposed to allegations by Botswana law enforcement officials that we are involved in poaching activities in their national park and that they will exercise their shoot-to-kill policy'. In this regard, Tlhage (2020) reports that Namibian citizens have been killed in anti-poaching operations, although the families of the deceased claimed that those killed were not poachers but rather innocent civilians or fishermen. This has inflicted fear among the communities whenever conducting their daily chores along the border.

Besides the challenges posed by the smuggling of goods and illegal crossing, illegal fishing is also a challenge in the area. Although fishing as a source of food and income in the area has been part of the lives these communities for years, illegal fishing seems to have a negative effect on the local economy, food security, and the environment. While some community members observe the off-fishing season, some ignore it and continue fishing illegally. This has resulted in the reduction of some fish species, threatening the livelihood of these communities. Additionally, the use of illegal fishing gear culminates in the disruption of marine habitats and ecosystems, resulting in a reduction of fish stocks in the area. To address the illicit activities in the area effectively, engaging local communities by way of training programmes on community policing, and border security regulations are necessary (Johnson, 2019).

*Border Control Measures and Their Challenges*

Under this section, border control strategies employed in Namibia and their challenges are discussed. Security screening of persons and travel documents is carried out when entering or leaving the country to ensure compliance with customs regulations. At the border post, inspection is conducted by customs officials, whereas patrol is carried out by NAMPOL and NDF personnel on foot and by way of vehicle patrols. The visibility

of these security sectors along the border and surrounding area acts as a deterrent to illicit activities.

Their effectiveness of these control measures is hindered by several challenges. From a law enforcement perspective, a lack of vehicles, overhead aerial surveillance, as well as manpower, hinders regular border patrols. Additionally, the vastness of the area that needs monitoring and control still poses a significant challenge, as there are still inaccessible remote areas that require overhead aerial surveillance, which seems to be non-existent in the area. This presents an opportunity for offenders to engage in illicit activities. Moreover, the security agencies that conduct border patrols indicated that they are hampered by a lack of both land and water transport to carry out their duties. In this case, boats are required for river patrols while vehicles are used for land patrols.

Apart from limited border patrols, carrying out regular inspections is also a challenge. Participants cited that the lack of equipment such as X-ray scanners, and detectors for border inspection and verification remains a challenge. In the absence of equipment or where equipment malfunction, Customs officials resort to physical searching, checking, and manual recording, which present opportunities for errors, conflicts, and disagreements as well as bribery, as argued by Claasen (2022). To improve border control, investments in infrastructure and equipment are required to ease mobility during border patrols and to ensure adherence to border regulations.

Participants' perceptions of the effectiveness of law enforcement showed that even though the Namibian law enforcement agencies were trying their best at the time to maintain law and order along the borders, there was a lack of collaboration with their neighbouring counterparts, which may have contributed to the killing of four Namibians because of the "shoot-to-kill" policy administered by the Botswana government (The Namibian, 2019). Participants consequently recommended the need for improved co-operation with security forces of neighbouring countries to address transboundary illicit activities effectively. They also emphasised the need for engagement with local communities to improve intelligence sharing, as residents often have first-hand knowledge of suspicious activities or illegal crossings.

Lastly, there is a need for capacity training programmes for law enforcement officers on border security and management and relevant legislation. Moreover, customs officials may require training in modern technology applications, border legislation, anti-smuggling investigations, and customs and border management. Such training is vital for skill development and competencies in border control and management.

The current findings revealed that, although law enforcement personnel encounter challenges when carrying out border control activities, they still manage to accomplish a degree of control under the given circumstances. The main measures for border control in the Ngoma area are inspection at the border post and patrols of the border and its surroundings.

## Conclusion and Recommendations

This study examined illicit activities in the Ngoma area in Namibia, focusing on the border control measures in place and the challenges faced. The key illicit activities identified were poaching, smuggling, illegal border crossings, and illegal fishing. The study on which this article reported highlighted how these activities threaten national security, hinder border control efforts, and disrupt community livelihoods and the local economy. Despite existing border control efforts, there are still challenges that hinder their effectiveness. The challenges identified include a lack of manpower, infrastructure, patrol means, collaboration among stakeholders, and equipment for border inspection and checking. Addressing these issues requires increasing manpower for enhanced law enforcement and patrols, investing in infrastructure, such as scanning equipment and surveillance technology, and fostering collaboration with security sector stakeholders.

In addition, engagement with local communities and regional co-operation, including shared intelligence, joint patrols, and training programmes, could improve border intelligence and co-ordination. Upgrading border control measures is essential to strengthen national security and maintain territorial integrity. This involves introducing advanced surveillance technologies, such as biometric scanners, and drones, as well as improving license plate recognition for greater security and efficiency in Ngoma. Training and capacity building for law enforcement and border officials are crucial for enhancing their skills in combating illicit activities. Moreover, sensitising community members to the effects of illicit activities through community policing could foster strong relationships with law enforcement. Furthermore, collaboration with agencies in neighbouring countries would also play a vital role in addressing cross-border threats and enhancing security.

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# ENDNOTES

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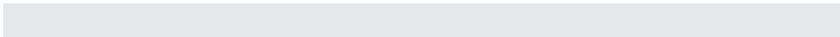
# Illegal Fishing and Maritime Security: Historical and Contemporary Challenges in Namibia

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## Abstract

The study on which this article reports argued that illegal fishing activities in the Namibian territorial waters and exclusive economic zones have implications for maritime security. The study traced the problem of illegal fishing in the country back to colonial times and linked it directly to foreign vessels. The intrusion of foreign vessels into Namibian waters received little interest – or if at all – in terms of the protection of ocean resources by the colonial administration coupled with a lack of regulatory frameworks. It was noted that the pattern of illegal fishing established during colonial times has continued into the present with several consequences. Illegal fishing affects maritime security in Namibia in five main dimensions, namely projection of military power at sea, protection of the marine environment, economic growth, development, and human security. These dimensions of maritime security are integrally linked and mutually reinforcing. It was thus shown that the limitation of sea patrols by the Namibian Navy and the Ministry of Fisheries and Marine Resources due to financial constraints caused by illegal fishing activities has a negative influence on the marine environment in terms of destruction and depletion of fish resources. Depletion of fish stocks results in loss of revenue and loss of jobs for coastal community dwellers. Combating illegal fishing is necessary if the marine resources are to be protected and make a significant contribution to the Namibian state. To combat the challenge of illegal fishing, improvement and strengthening of existing mechanisms, international collaboration, cooperation, and coordination between maritime security agencies, and continued engagement with neighbouring states were considered necessary.

**Keywords**: EEZ, Fisheries, Illegal Fishing, Maritime Security, Namibia

## Introduction

The vast Namibian territorial waters and exclusive economic zone (EEZ) have historically attracted foreign vessels that operate legally and, in some cases, illegally in the area. Historical records show that fishing vessels from Europe, Asia, and Central America dominated the Namibian fisheries sector during colonial times (Sumaila & Vasconcellos, 2000). Patterns of illegal fishing established during colonial times have however continued

into the present with serious consequences. The reasons for the presence of foreign vessels in Namibian territorial waters and EEZ are not far-fetched. Namibia is synonymous with rich marine biodiversity and a booming fishing industry. Its geostrategic location along the flow path of the Benguela Current makes its marine ecosystem abundantly rich in diverse fish species (Sell *et al.*, 2024). These natural endowments are unique in many respects but have negative and positive implications for the Namibian state. The positivity of these natural endowments comes from a thriving fishing industry while the negativity manifests in the form of attraction to illegalities, especially illegal unreported and unregulated (IUU) fishing. The 2001 International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported, and Unregulated Fishing (IPOA-IUU) defines IUU fishing as vessels from member states violating regulations by fishing in the waters of another country without authorisation or on the high seas without a flag (Green & Rudyk, 2020; Miller & Sumaila, 2016). The occurrence of these fishing activities within the territorial waters and EEZ of Namibia is widespread (Mbathera, 2022; Ministry of Fisheries and Marine Resources [MFMR], 2021).

Interestingly, illegal fishing is carried out by vessels of countries that are parties to fisheries organisation; yet, they operate in violation of the rules of the organisation (MFMR, 2021; Shigwedha, 2022). These illegal fishing vessels operate in most cases without permission, or on the high seas without flying a flag or showing other markings (Green & Rudyk, 2020; Miller & Sumaila, 2016). Illegal fishing operations also entail situations in which bycatches are not reported to relevant authorities by fishing vessels or flag states, irrespective of whether they belong to fisheries organisation or not (Tessnow-Von Wysocki, Belhabib & Le Billon, 2022). Unreported catches encompass failure to report illegal activities, misreporting, and underreporting of catches. As Mickiewicz, Wołos and Trella (2020) indicate, IUU fishing leads to the non-achievement of management goals and the sustainability of fisheries. Falling under this category would also be corruptly awarded fishing quotas to foreign fishing companies without following due processes, which tends to result in overfishing of Namibian maritime waters (Coetzee, 2021; Grynberg, Immanuel & Amupadhi, 2023; Warikandwa, 2023).

The extent of occurrence, probability of occurrence, and historical antecedents thus make illegal fisheries activities a significant threat to Namibian maritime security. It has been shown by Chiripanhura and Teweldemedhin (2016) as well as Sumaila (2000) that the fisheries sector has the potential to make more significant contributions to the Namibian economy and workforce than it currently does. This will only be possible if recurrent illegal fisheries activities in Namibian territorial waters and EEZ are prevented effectively, allowing for an increase in fish stocks and revenue generation to the Namibian fisheries industry and government (Campling *et al*., 2024; Neethling & Goedhals-Gerber, 2023). A steady decline in fish stocks however contributes to the worsening of food security problems in Namibia (Kainge *et al*., 2020; Ye, Ndiaye & Al-Husaini, 2024).

The severity of illegal fishing activities and the foreseeable potential of the fisheries sector for the Namibian economy, politics, and society are the motivating factors behind this qualitative study. The study utilised a systematic review to explore the challenge of illegal fishing in the territorial waters and EEZ of Namibia to show the consequences of such

fishing for maritime security. Maritime security implies a wide range of issues within the maritime space – ocean, sea, territorial waters, rivers, and ports – which have a significant bearing on the national and human security of a country as well as its marine ecosystem. Among other things, maritime security relates to the prevention and combating of unlawful activities, such as illegal, unreported, and unregulated fishing, smuggling, transloading, bunkering, trafficking of narcotic drugs, and piracy in the territorial waters and EEZ of a country by national and international criminal syndicates (see Okafor-Yarwood, 2020). Illegal fisheries activities constitute a violation of Namibian maritime space and therefore a direct threat to its maritime security.

This discussion is subdivided into six sections, starting with the introduction. In the second section, a detailed explanation of the methods used to gather materials for the study is provided. The third section provides a discussion of illegal fishing in Namibian waters from a historical perspective. This entails tracing the problem of illegal fishing in Namibian waters from colonial times and providing reasons why the problem has persisted, as well as its consequences for the marine ecosystem and security. The fourth section focuses on post-independence efforts aimed at monitoring, controlling, and protecting the Namibian maritime space. The discussion then considers the link between illegal fishing, and maritime security is addressed in the fifth section. This fifth section entails looking at the main domains of maritime security and identifying domains that are mostly affected by illegal fishing activities in the country. The discussion is concluded in the sixth section, where the main challenges to combating illegal fishing in the territorial waters and EEZ of Namibia are highlighted, and recommendations are made on ways to deal with the problem. In addressing the problem of illegal fishing and its impact on maritime security, the criticality of international and regional co-operation, coordination, and collaboration are emphasised.

## Methodology

Relying strongly on a systematic literature review, the study on which this article reports, examined the challenge of illegal fishing and maritime security in Namibia, bringing the historical antecedents and contemporary manifestations to the fore. The choice of systematic literature as a method of inquiry was informed by two main reasons. Firstly, data on critical issues about the fisheries sector, such as fish stocks, are often old and, in some cases, incomplete because surveys are not carried out regularly. Secondly, much has been written about the fisheries sector in Namibia, making data available for meta-analysis of a recurrent problem. The review therefore focused on published materials by national and international fisheries organisations as well as academic journal articles by seasoned scholars in the field of fisheries, marine resources, and maritime security.

Moreover, annual reports by the MFMR and Namibian government policies on fisheries, marine, and maritime resources were extensively consulted. Relevant newspaper articles dealing with issues about the fisheries sector as well as new items on the industry were equally relied upon in providing an analysis. A search was undertaken for materials dating back to colonial times since the approach of the article was historical. Particular attention was paid to information relating to illegal fisheries activities and their implications for the

economy, the marine ecosystem, and maritime security. While the search returned many published materials on illegal fisheries and maritime security, efforts were made to sort out diligently the most relevant using the following key words and phrases:

> "maritime security"; "maritime security implications"; IUU; "illegal, unregulated, and unreported"; "history of IUU"; "illegal fisheries"; "environmental implications"; "social implications", "Namibia".

The search was carried out in academic journals (SCOPUS and Google Scholar indexed); non-academic publications, such as MFMR annual reports; speeches; newsletters; reports of international fisheries organisations; and local newspaper reports.

The returned academic journals sources (n = 751); non-academic sources returned (n = 30) materials and newspaper sources comprising news items and articles returned (n = 50); bringing the number of materials screened to n = 831. The titles of selected materials were screened for relevance to the subject of the study, and some materials were excluded (n = 501). Selected materials were sought for retrieval (n = 330), but not all were retrieved (n = 245); therefore, the material comprised selected materials retrieved and that were relevant (n = 85), and selected and retrieved material not meeting set criteria for inclusion (n = 34). These materials were excluded for being too old in terms of data; were draft government reports; or were opinion pieces that did not specifically address maritime security and illegal fisheries activities in Namibia. Selected materials retrieved (n = 51) were assessed for relevance. The final 51 sources considered relevant to the study were thoroughly examined to ensure that they –

- Addressed the issue of illegal fisheries activities;
- Referred to maritime security in Namibia; and
- Referred to implications of illegal fisheries for economic, social, and environmental well-being.

## Historical Context of Illegal Fishing in Namibian Waters

The Namibian colonial experience was unique. The country was colonised by two different countries at different times in its political and economic history. Firstly, Namibia (formerly South West Africa) was colonised by Germany between 1884 and 1914. From 1914, the country was occupied by South African armed forces following the defeat of the German colonial army during World War I (1914–1918). Namibia then officially became a mandate territory of the League of Nations under the direct administration of the Union of South Africa with certain conditions until 1990. The unique colonial experience of Namibia is widely reflected in the domination of its economy by foreign investments, especially South African and European businesses (Gammage, 2017). The pattern of foreign investment was such that foreign companies made considerable profits from their investments in the country to the detriment of the well-being of Namibian citizens and the Namibian national economy. The domination of the Namibian economy by foreign interests – both in the past and in the present – is exemplified by the fishing industry. This sector of the Namibian economy is now controlled by Namibians (Carver, 2020).

To this end, Sumaila and Vasconcellos (2000) posit that Spanish fishing vessels and those of the defunct Soviet Union were among the first to arrive and harvest marine resources in Namibian waters. Importantly, these vessels arrived in Namibian waters around 1964 (Sumaila & Vasconcellos, 2000). They were followed by fishing vessels from Japan, Bulgaria, and Israel in 1965. Vessels from countries, such as Belgium and Germany, appeared in 1966, and those from France were noticed in Namibian waters around 1967. Not to be left out in the scramble for Namibian marine resources, Cuban fishing vessels appeared in Namibian waters around 1969. Romanian and Portuguese fishing vessels joined the intense competition for Namibian marine resources around 1970, while Polish and Italian vessels joined the scramble in 1972 and 1974 respectively. Fishing vessels from Middle Eastern countries, such as Iraq were noticed in 1979, while those of Asian countries – mainly the Republic of China (Taiwan) and South Korea – came in 1981 and 1982 respectively (Sumaila & Vasconcellos, 2000).

Carver (2020) observed that, during colonial times, the presence of commercial fishing vessels from different countries around the world was an indication of an unregulated fisheries sector. According to Gänger *et al.* (2019), the largely unregulated fishing in Namibian waters in colonial times contributed immeasurably to a drastic depletion in fish stocks in Namibian waters. Chiripanhura and Teweldemedhin (2016), as well as Mbaimbai (2021), support this assertion by noting that stocks of fish species, such as southern African pilchard (*Sardinops ocellatus*) and Cape hakes (*Merluccius capensis, M. paradoxus* and *M. pollis*), were depleted by the 1980s following consistent catches in tons of the species since the 1960s. Providing a reason for the historical neglect of the Namibian fisheries sector, Melber (2022) avers that the colonial administration of the territory failed to provide sufficient scientific monitoring of fish stocks in Namibian waters. Belhabib, Sumaila and Le Billon (2019) support this conclusion by noting that before independence, the territorial waters and EEZ of Namibia were sites of intense and disorderly fishing activities, involving vessels from different parts of the world. Similarly, Warikandwa (2023) claims that IUU fishing occurred not only on the high seas but also within the Namibian EEZ due to inadequate regulations.

Tracing the intensification of competition for Namibian marine resources by distant water fishing fleets (DWFs) to the 1960s, Finke, Gee, Kreiner, Amunyela and Braby (2020) blame the phenomenon on the absence of sufficient oversight of fisheries activities in Namibian waters. Without disagreeing with the argument of other scholars on the pre-independence lack of adequate oversight of the fisheries sector, Kwiatkowska, Molenaar, Elferink and Soons (1999) add that many state signatories to the Convention of Plenipotentiaries of 1969 – which led to the establishment of the International Commission for South East Atlantic Fisheries (ICSEAF) – misapplied their provisions to engage in overfishing in Namibian waters.

The consequences of unregulated fishing activities in the territorial waters and EEZ of Namibia were the overexploitation of Namibian marine resources and the degradation of its marine ecosystem (Belhabib *et al.*, 2019). Sumaila and Vasconcellos (2000) note that this intense, unregulated competition for Namibian marine resources by foreign vessels left the country at independence in 1990 with a changed ecology as well as a significantly

lower potential for fisheries productivity. The reason behind these conclusions is that, during colonial times, there was relatively little or no reporting on catches by foreign fishing vessels. Similarly, monitoring and control of fisheries activities in the territorial waters and EEZ of a country by the colonial administration were lacking. Anyone could thus fish without permission (Sjöstedt & Sundström, 2015). The 'free for all' condition favoured foreign vessels intent on engaging in IUU fishing operations.

Colonised Namibians had little to no control over the monitoring and sustainability of their fisheries resources, resulting in the receipt of little or no benefits from fisheries resources. From the above the absence or poor implementation of fisheries policy; a lack of monitoring, control, and surveillance of resources; or an interest in marine resources by the colonial administration might have contributed to the persistence of the problem in the past.

## Post-Independence Efforts to Regulate the Fisheries Sector

The recurrent problem of illegal fishing in Namibian waters is not necessarily due to the abundance of fish in Namibian waters but can rather be ascribed to the rise in global demand for certain fish species due to limited sources of these fish. The rise in global demand results in an escalation of fisheries activities in marine areas beyond the national jurisdictions of many fishing vessels keen on good catches and making huge profits (Cochrane, 2021). In this regard, the fisheries sector remains significant to Namibia regarding job creation and food sources. Based on its historical development, the sector is export-oriented; however, a lack of financing at the time of independence resulted in the Namibian government inviting back international fishing companies that had fished in Namibian waters before independence. Under the 'Namibianisation' drive, these firms were required to form joint ventures with Namibian counterparts to receive fishing quotas (Armstrong, Sumaila, Erastus & Msiska, 2004:203). It has been observed, however, that only a minority of Indigenous firms benefited from these quotas, with little investment in infrastructure or equipment purchases (Armstrong *et al.*, 2004:203; Melber, 2022).

Since independence in 1990, Namibia has committed to rebuilding its fisheries sector through the implementation of stringent conservation measures as well as a commitment to protect its marine ecosystems and maintain a balance between conservation and exploitation to secure the future of the Namibian fisheries industry and coastal communities. The historical facts about the fisheries sector and the need to protect marine resources prompted Namibian post-independence adoption of several pieces of national and international legislation. These measures were taken given that combating illegal fishing requires strict measures. These measures include the adoption of legislation, strengthening of existing legal frameworks, monitoring, control, surveillance as well as law enforcement capabilities. These include fines and imprisonment for those found guilty of contravening the law. Enforcement equally entails the monitoring of fisheries activities within the maritime space by air surveillance and sea patrols as well as using a vessel monitoring system (VMS) to track the movement of vessels in territorial waters to identify those engaged in illegal fishing activities. By law, all vessels are required to

report their entry and exit from Namibian waters. In addition, fishing vessels that operate in Namibian waters are legally required to have an observer on board to ensure compliance with existing regulatory frameworks and to collect scientific data (Iitembu, Mafwila, Ndara & Erasmus, 2023). Furthermore, partnership with international organisations, such as the United Nations Food and Agriculture Organization (FAO, 2001) and Interpol forms an integral part of efforts to enhance capacity to combat illegal fishing (Warikandwa, 2023).

In Namibia, these efforts are led by the Ministry of Fisheries and Marine Resources (MFMR). To address the problem of illegal fishing in the territorial waters and EEZ of Namibia, it is necessary to correct the mistakes of the past. Namibia therefore adopted a few legislative measures immediately after independence in 1990. The first of these legislative measures was the proclamation of the 200 nm EEZ in the Territorial Sea and Exclusive Economic Zone of Namibia Act (No. 3 of 1990) following the United Nations Law of the Sea, 1982. Section 2 of Act 3 of 1990 outlines the determination and definition of the territorial sea, internal waters, contiguous zone, exclusive economic zone (EEZ), and the continental shelf of Namibia (Republic of Namibia, 1990). The determination and proclamation of the Namibian territorial sea meant that the Namibian government could exercise direct control over its marine resources, including fish and other offshore natural resources. Act 3 of 1990 provides the legal framework for managing Namibian marine resources more profitably and sustainably. Discussions around sustainable management of Namibian marine resources and maritime space have become more frequent in recent years because of the perceived potential contribution of the fisheries sector to Namibian economic growth and the need to protect the environment.

Since the intention of the Namibian government policy after independence was to rebuild fish stocks to their full potential, various management approaches, such as increased monitoring, total allowable catch adjustment, and seasonal or spatial fishery closures were introduced (Iitembu *et al*., 2021). Act No. 3 of 1990 further provides for matters incidental to the management of these areas. The legislation and its proclamation demonstrate the importance attached to the EEZ by the government of Namibia, and its willingness to ensure responsible management of Namibian marine resources. The establishment in 1991 of the MFMR was meant to ensure responsible utilisation and management of aquatic living resources, as well as the sustainable development of aquaculture. Since its establishment, the MFMR has been providing leadership in fisheries research and management in Namibia. In December 1991, a white paper entitled 'Towards Responsible Development of the Fisheries Sector' outlining the fisheries policies for responsible development of the sector was released. Proposed policies were subsequently translated into legislation by the Marine Fisheries Act. The Marine Resources Act (No. 27 of 2000) strengthened the commitment by the government to conserve the marine ecosystem and to promote the responsible utilisation, conservation, protection, and promotion of marine resources on a rights-based and scientific approach to fisheries management (MFMR, 2000). The Marine Resources Act (No. 27 of 2000) also gives the government the authority to exercise control over marine resources and address other related matters (MFMR, 2000).

The adoption of the Marine Resources Act of 2000 was quickly followed by the Regulations relating to the Exploitation of Marine Resources, 2001, which was specifically aimed at regulating the exploitation of marine resources in the country to rebuild depleted fish stocks caused by overfishing as previously pointed out. The regulations relating to the Exploitation of Marine Resources, 2001 were aimed at establishing a monitoring, control, and surveillance infrastructure to manage marine resources sustainably. Consolidation of efforts at improving fish stocks and responsible development and management of the marine resources sector led to the development of the Marine Resources Policy in August 2004. This policy was developed to support existing regulations and to provide guidance on responsible development and management of the marine resources sector for the sector to make a significant contribution to the Namibian development agenda. To help enforce the regulations and policy, Namibia invested in monitoring, control, and surveillance systems (MCS) for fisheries activities. The MCS ensures compliance with regulations and management measures during the harvesting, handling, and processing of marine resources. This means that the country can monitor and regulate fishing activities better, thereby helping to prevent overfishing and protect the marine ecosystem. In addition, Namibia placed restrictions on fishing activities to allow these only in water depths above 200 meters to protect juvenile fish.

Existing legislation guiding the fishing industry in Namibia further provides that, to access and exploit any living marine resources, an individual or a group of individuals or a company must possess a fishing right or license (Zongwe, 2019). The granting of a fishing right is a strategy to regulate fishing operations within the EEZ of a sovereign state. The fishing license permits a holder to engage in fishing at a particular time and place under specific conditions (Zongwe, 2022). More specifically, the Marine Resources Act (No. 27 of 2000) (MFMR, 2000), provides that 'no person shall in Namibia or Namibian waters harvest any marine resources for commercial purposes, except under a right, an exploratory right or a fisheries agreement'. Different parts of the Marine Resources Act No.27 of 2000 contain various rights and circumstances associated with resource exploitation in Namibian waters (MFMR, 2000). All commercial exploitations of living marine resources in Namibia are based on rights, which are renewed every four to twenty years (Carver, 2020; MFMR, 2000).

Moreover, the country has placed some restrictions on fishing activities in the Namibian territorial waters and EEZ. In this regard, fisheries management is based on quota allocations to rightsholders, and the right is non-transferable. Belhabib *et al.* (2019) observed that the goal of limiting fishing in Namibian waters to authorised persons only has been fully achieved; however, the country is still struggling to attain the goal of ensuring that fishing activities are carried out under administrative and legal guidelines.

Despite strict measures in place to end illegal fishing in the territorial waters and EEZ of Namibia, cases of illegal fishing by mostly foreign vessels are still being reported. In 2023, for example, several news outlets in Namibia reported that tens of thousands of tons of fish, mostly horse mackerel, were being stolen out of Namibian waters by licensed foreign-flagged vessels operating in Angolan waters (Matthys, 2023; 2024). This caused Namibia to lose revenue because the market was being flooded with horse mackerel;

hence, forcing operators to sell fish cheaper locally and internationally (Chiripanhura & Teweldemedhin, 2016). Illegal fishing in Namibian waters and EEZ has serious implications for the maritime security of the country. The implications of illegal fishing for Namibian maritime security are discussed next.

## Illegal Fishing and Maritime Security

Illegal fishing poses a serious threat to Namibian maritime security. Security as employed in this discussion connotes the guarantee of freedom from threats because of the capacity of the state to preserve its sovereign identity, defend its territorial integrity, and protect its citizens against real or perceived adversaries (Iroanya, 2018). Threats to the security of a state can emanate from several sources and can be direct or indirect (Iroanya, 2018). Illegal fishing, for example, is a direct or objective threat to Namibian security because it is explicit, and targets marine resources, particularly fish species, the revenue-generating capacity of the Namibian state, its environmental stability, and the livelihood of its coastal populations. Like other coastal states, Namibia therefore places a strong emphasis on security on its development agenda. This is reflected in several pieces of national legislation and multisectoral strategies adopted for monitoring, control, and surveillance of its fisheries and other marine resources. Maritime security is an integral part of the national security of a country. The African Charter on Maritime Security and Safety and Development in Africa (Lomé Charter) defines maritime security as the 'prevention of and fight against all acts of threats against a ship, its crew, and its passengers or against the port facilities, maritime infrastructure, maritime facilities, and maritime environment' (African Union, 2016:10).

In the current study, maritime security was considered an integral part of national security discourse and was discussed from five main dimensions.

Firstly, from the dimension of military power or national power projection at sea, maritime security refers to, among others, control of the sea, as seen through regular patrol of territorial waters and EEZ by naval warships and the patrol vessels of the coastal guards of the country. These patrols are aimed at preventing illegal activities by vessels; deterrence of criminality and territorial violation by adversary forces; and protection of key international trading routes (Bateman, 2016). While sea patrols by the Namibian Navy are not regularly carried out because of several factors, such as insufficient resources, costs of operations and maintenance of vessels, and the vastness of the EEZ, illegal fishing does not directly threaten Namibian military power projection at sea as an aspect of maritime security. Indirectly, however, the frequency of illegal fishing activities in Namibian waters and the EEZ places a strong burden on the Namibian Navy. The Namibian Navy, like other ministries and agencies of the Namibian state, is currently confronted with budget constraints as it grapples with the serious challenge of increasing costs due to escalating expenses of its operations. The institution carries out a patrol of the Namibian territorial waters and EEZ against the background of global economic uncertainty, an unprecedented rise in the price of diesel fuel, a steady rise in the cost of maintenance of patrol vessels, a shortage of specialised skilled personnel, and costly parts necessary for the maintenance

of vessels. Illegal fisheries activities exasperate these challenges, which could affect the efficiency of sea patrol operations of the Namibian Navy.

These patrols would require an increase in the military budget. The challenge faced by the military is made clear by the report of the MFMR (Mbathera, 2022; The Namibian, 2022). According to the MFMR, about N$70 million was spent in the fight against IUU fishing activities within the Namibian territorial waters and EEZ (Mbathera, 2022; The Namibian, 2022). The MFMR (2021) further stated it would need an additional N$58 million to carry out the MCS as part of efforts to combat IUU fishing activities in Namibian EEZ and inland water bodies. From a national security perspective, persistent illegal fishing activities pose a serious threat to Namibian territorial (maritime) sovereignty and could facilitate transnational organised crime, including drug and human trafficking (Adewumi, 2021). Addressing these issues requires robust international co-operation, effective enforcement mechanisms, and sustainable fisheries management strategies (Bell, Odell, Kirchner & Lomonico, 2020).

Secondly, from the dimension of the marine environment, maritime security involves the prevention of marine pollution, the safety of ships and crew at sea, the enforcement of regulations, the capacity for search and rescue, and a healthy and sustainable ecosystem (Fransas, Nieminen, Salokorpi & Rytkönen, 2021). The territorial waters and EEZ of Namibia are generally used for commercial fishing. Illegal fishing in restricted areas and at all times of the year results in the catching of young fish, which has a detrimental effect on fish stocks. Other manifestations of maritime security are amelioration of the effects of climate change on marine resources in collaboration, co-operation, and co-ordination with intergovernmental organisations, such as the International Maritime Organisation (IMO) and United Nations Oceans (UN-Oceans). In line with this, it has been shown that, in parts of the Namibian Islands Marine Protected Area (NIMPA), purse seining is prohibited. According to Montgomerie (2022), purse seining is a fishing method that uses a large net to encircle schools of fish at the surface and close to the sea bottom. At the same time, recreational fishing takes place mainly along the central part of the Namibian coast, with seasonal and permanent closure of sites throughout the coastline (Finke *et al*., 2020).

It is further shown that the Namibian marine fisheries sector is mainly commercial species, such as hake (Cape hake or shallow-water hake) (*Merluccius capensis*), while deep-water hake (*Merluccius paradoxus*) are often caught in trawls (Wilhelm *et al*., 2015). Kingklip (*Genypterus capensis*), snoek (*Thyrsites atun*), monkfish (*Lophius vomerinus*), and West Coast sole (*Austroglossus microlepsis*) are additional species that are also collected in Namibian mid-water trawls, but as bycatch to the hake business (Kainge *et al*., 2020). Without adequate monitoring, control, and surveillance of the fisheries sector, the stocks of these fish species would drastically deplete, causing a ripple effect on employment, food sources, and revenue of the state. Table 1 highlights the depletion of fish species populations over the years in Namibian waters.

*Table 1: Estimated fish population from 2004 to 2021*

| Year | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2012 | 2013 | 20202021 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Horse Mackerel** | 1 400 000 | 1 600 000 | 1 000 000 | no surveys | no surveys | 1 319 000 | 1 207 000 | 1 250 000 | 1 579 000 | 1 705 000 |
| **Hake** | 1 300 000 | 1 000 000 | 898 000 | 701 000 | 936 000 | 1 476 000 | 1 000 000 | 820 000 | 1 390 000 | 879 000 |
| **Monkfish** | 35 000 | 45 000 | no surveys | 14 400 | 18 000 | 30 600 | 40 000 | 48 000 | 22 000 | no surveys |
| **Orange Roughy** | 5 870 | 5 600 | no surveys | no surveys | no surveys | no surveys | no surveys | no surveys | no surveys | 59 988 |
| **Rock Lobster** | 1 400 | 1 700 | 2 000 | no surveys | no surveys | no surveys | no surveys | no surveys | no surveys | no surveys |
| **Deep-sea Red Crab** | 13 000 | 16 000 | 18 000 | no surveys | no surveys | no surveys | 7 000 | 11 000 | 11 000 | 15 620 |
| **Pilchard** | 327 000 | 395 000 | 139 000 | 106 000 | 135 000 | 357 000 | 134 000 | 357 000 | 116 000 | no surveys |

*Source: Authors' compilation based on MFMR annual reports*

The table indicates no consistency in the survey of fish species populations in Namibia. From the available data shown in Table 1, fish species' populations have fluctuated over the years. For instance, the hake species population was 1.39 million in 2013 but decreased to less than a million (879 000) or by 37 per cent in 2021. In 2012, the monk fish population was 48 000 but decreased to 22 000 or by 54 per cent in 2013. In 2012, the pilchard population was 357 000 but decreased to 116 000 or by 68 per cent in 2013. Fluctuations in fish species can be attributed to commercial fishing, illegal fishing, and inconsistency in surveys.

Illegal fishing activities are linked to maritime security in other ways. They not only result in overexploitation of marine resources and depletion of fish stocks but also degrade the marine environment. The phenomenon has also been shown to have the capacity to lead to other environmental problems, such as the loss of biodiversity in semi-arid states, such as Namibia (Ruppel-Schlichting, 2022). Similarly, maritime security emphasises the location of vessels, especially fishing vessels, as this is necessary for search and rescue operations in cases of emergency at sea. Reports however show that some fishing vessels turn off their video management system (VMS) to hide their locations at sea. Criminal activities such as these can make these vessels targets of terrorist attacks, sea robbery, and piracy. Such acts may also facilitate the illicit movement of contraband goods and weapons through the sea. In 2022, aerial surveillance flights by the MFMR resulted in the sighting and arrest of 33 vessels illegally fishing in the Namibian EEZ (Justinu, 2022). The implications this has for maritime security in Namibia are obvious, as this could result in the decline of fish stocks and the degradation of the marine ecosystem. The loss of unquantifiable fish tonnage annually due to IUU fishing activities means the loss of millions of Namibian dollars in revenue accruable to the Namibian state.

Thirdly, maritime security as an integral component of the national security of Namibia relates to economic growth and development. The persistent problem of illegal fishing activities may hinder economic growth and development if adequate measures are not in place. Currently, the contribution of the fisheries sector to the Namibian gross domestic product (GDP) has remained relatively stable at 4,0 per cent over the years as shown in Table 2.

*Table 2: Fisheries contribution to GDP, 2016–2020*

| Contribution by fisheries to GDP, 2016–2020 | | | | | |
|---|---|---|---|---|---|
| Year | 2016 | 2017 | 2018 | 2019 | 2020 |
| Total national GDP (N$) | 157 708 | 171 570 | 181 009 | 181 324 | 176 327 |
| Total fish contribution to GDP (%) | 3.91 | 3.69 | 4.33 | 4.05 | 3.89 |

*Source: MFMR Annual Report, 2020–2021*

Currently, the Namibian maritime fishing industry is the third-largest contributor to its GDP (Namibia Statistics Agency [NSA], 2022). The fisheries sector plays a key role in production, employment, foreign exchange earnings, and the revenue-generating

capacity of the government. Existing reports show that the fisheries sector contributes approximately 4.0 per cent to the GDP in Namibia (MFMR, 2021), and it is the largest employer of all marine industries with approximately 16 000 (or 1.8 per cent of the total Namibian workforce) direct jobs in the industry (Iitembu *et al*., 2021). Importantly, about 97 per cent of all fishery products are exported to other countries. The fisheries sector contributes about 15 per cent of all Namibian exports to the outside world (Chiripanhura & Teweldemedhin, 2016).

The IUU fishing activities threaten marine resources and undermine government efforts geared toward ensuring the long-term viability of the industry (Shigwedha, 2022; The Namibian, 2022). More so, unchecked illegal fisheries activities in violation of Namibian maritime sovereignty may lead to an increase in other criminal activities, such as piracy and sea robbery, which have a significant influence on global trade (Mbathera, 2022). The importance of the Namibian Sea to international trade cannot be over-emphasised. Global trade is heavily dependent on efficient control and management of sea routes.

The fourth dimension of maritime security concern is the human security of the population of coastal communities. In 2022, for example, the Namibian Police confirmed the discovery of about 60 human trafficking victims in a commercial fishing vessel in Namibian waters (Mbathera, 2022). While most of the suspected victims were Filipinos, others were Angolan, Indonesian, Mozambican, Namibian, and Vietnamese nationals (Mbathera, 2022).

The major means of livelihood in coastal communities is fishing. By protecting marine resources and ensuring sustainable healthy fish stocks, the livelihood of coastal communities is preserved. It has also been shown that coastal communities are among the most vulnerable people in terms of the adverse effects of climate change and criminal activities, which take place at sea (Mendenhall *et al*., 2020). Transloading at high seas may, for instance, lead to oil spillage and other types of pollution, which in turn pollutes other water sources on which coastal communities depend for drinking water (Whear, 2023). Although Namibian coastal areas are sparsely populated, it has been shown in other studies (Iitembu *et al*., 2023; Sjöstedt & Sundström, 2015) that environmental degradation caused by illegal fishing, dumping, and other marine crimes, can stir up protests among coastal populations, resulting in maritime security instability because of the emergence of piracy (De Coning *et al*., 2022).

The fifth dimension of maritime security which can be threatened by illegal fishing activities is diplomatic relations. Illegal fishing activities can lead to the rupturing of diplomatic relations between Namibia and its neighbouring countries. Evidence of this possibility can be drawn from the December 2023 arrest of an Angolan vessel in Namibian waters (Shigwedha, 2022; The Namibian, 2022). In 2021, the Namibian government, for example, accused the Angolan government of ignoring several reports, which showed that Angolan vessels sneak into Namibian waters at night to steal fish. Furthermore, the MFMR also revealed that, since 2017, it has detected about 23 Angolan fishermen carrying out illegal fishing activities in Namibian waters (Shigwedha, 2022; The Namibian, 2022). Again, in 2023, the MFMR – in collaboration, co-operation, and co-ordination with the

Namibian Navy – seized and detained an Angolan vessel for allegedly fishing in Namibian waters illegally (Matthys, 2023). The vessel was detected fishing at approximately 24 km or 13 knots within Namibian territorial waters without the necessary authorisation (Matthys, 2024). Before this event, Namibian authorities had accused Angola authorities on several occasions of being uncooperative in the fight against IUU (Matthys, 2024). The Namibian authorities further alleged that their Angolan counterparts do not honour the terms of bilateral agreements between the two Southern African states. Consequently, foreign vessels illegally fishing in Namibian waters tend to escape to Angolan waters when detected by the Namibian Navy or the MFMR coastal patrol vessels and ordered to stop (Matthys, 2024). Since neither the Namibian Navy nor the MFMR coastal patrol vessels have the right by international law to chase these fishing vessels into Angolan waters, the vessels always go unpunished and return again and again to continue their illegal fishing activities in Namibian waters (MFMR, 2021).

From the above, it is obvious that combating illegal fishing is necessary if marine resources are to be protected. This necessity emanates from the fact that the phenomenon poses several threats to maritime security, encompassing economic, environmental, social, and national security dimensions. The undermining of the livelihoods of genuine fishermen, depletion of fish stocks, and saturation of markets with unregulated catches have significant consequences for food security, particularly in coastal communities reliant on fish as a primary source of protein. Similarly, the destruction of marine habitat and biodiversity loss through practices, such as bottom trawling and bycatch, fosters conflict between legal and illegal operators over access to resources, thereby disrupting the peace and stability of coastal communities.

## Conclusion

The current study examined the seriousness of illegal fishing in Namibia from its historical roots in colonial times. In this article, it was argued that the persistence of illegal fishing, shaped by history, threatens Namibian maritime security. Maritime security has been discussed as encompassing a wide range of issues across oceans, seas, territorial waters, rivers, and ports, which seriously affect the marine ecosystem, the economy, and people's livelihood. Illegal fisheries activities result in the depletion of fish stocks, disruption of marine ecosystems, the contribution of fisheries to the Namibian GDP, and loss of jobs for coastal dwellers. To unlock the full economic potential of the Namibian fisheries sector, illegal fisheries activities need to be curbed significantly through international cooperation, effective enforcement, and sustainable management strategies. Improved collaboration, co-operation, and coordination between maritime security agencies are required to ensure effective monitoring and control of fisheries activities in the territorial waters and EEZ of the country.

Addressing the problem of illegal fishing activities and improving maritime security would require significant investment in innovative monitoring, control, and surveillance technologies across different agencies. For the Namibian Navy, for example, it would be necessary to acquire unmanned aerial vehicles (UAVs) to complement traditional

methods of air surveillance and sea patrols. Drone technologies (UAVs) equipped with infrared camera systems would help by quick detection and hot pursuit with an element of surprise in apprehending vessels illegally fishing in Namibian waters. These measures would help provide effective protection of the valuable marine ecosystem.

The distance from shore, where the naval and MEMR facilities are in Walvis Bay to the Namibian EEZ, is quite long and constitutes a serious challenge to rapid response and effective monitoring, control, and surveillance of the area. For this reason, Namibia needs to emphasise the criticality of not only reinforcing national legislation and law enforcement capabilities but also the criticality of international co-operation and co-ordination as well. As a coastal state, Namibia can enhance its maritime security by joining maritime security arrangements in Africa, such as the Yaoundé Code (Gulf of Guinea Architecture) and the Djibouti Code. By working together with international partners and strengthening national legal frameworks and law enforcement capabilities, the country can combat illegal fishing effectively and protect its valuable marine ecosystem.

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# ENDNOTES

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# Book Review

# Bush brothers: Life and death across the border

## Steve de Witt

In recent decades, advances in technology have allowed veterans to share their war experiences with a broader audience than ever before. Through emails, family newsletters, social media, blogs, and even affordable self-publication, contemporary soldiers can record and distribute their experiences far beyond the traditional channels once reserved for talented literary figures, such as Siegfried Sassoon.[9] The influence on historiography is profound, especially with ongoing concerns over the primary sources that will be available to future historians. This democratisation of war memoirs has inspired institutions worldwide to value these stories more than before. The Dutch Veterans Day Committee, for instance, created an annual Veterans' Books Day, and the British Imperial War Museum launched its War Story project. As Esmeralda Kleinreesink succinctly puts it, 'war stories are hot' (Kleinreesink, 2017:4).

While this level of appreciation may be less widespread in South Africa, there is enough interest to encourage veterans, such as Steve de Witt, to document their experiences, and for respected publishers, such as Tafelberg, to bring these stories to print. In recent years, numerous titles on the South African Border War, also known as the Bush War (1966–1989), have emerged. These memoirs come from a wide range of perspectives – from high-ranking officers to troops, different branches of service, and various personal backgrounds. Together, they provide a multi-faceted understanding of the conflict. Among these works is Steve de Witt's *Bush brothers: Life and death across the border*, a chronological recounting of his experiences as an infantryman in the South African Defence Force (SADF) beginning with his conscription in 1981.

In *Bush Brothers*, De Witt started his journey with basic training at the 6 South African Infantry Battalion in Grahamstown (now Makhanda), where he met those who would become his "Bush Brothers". To their disappointment, their unit was initially posted not to the operational area in South West Africa (SWA) (now Namibia) but to Beit Bridge on the South Africa–Zimbabwe border. Here, their task was patrolling and guarding against insurgents from uMkhonto we Sizwe (MK) crossing the Limpopo River. Soon,

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[9] Siegfried Sassoon was a British soldier, poet, and writer acclaimed for his forceful anti-war poetry and memoirs, which drew from his experiences in the First World War. His work powerfully conveyed the grim realities of trench warfare, challenging romanticised perceptions of military heroism, and establishing him as one of the most influential war poets of his era.

however, his unit was transferred to Okatope near Ondangwa, closer to the main area of conflict, where De Witt and his fellow conscripts came face-to-face with "terrs" (short for "terrorists", a term then used to describe armed insurgents), "gooks" (a derogatory term for guerrillas), and the infamous Koevoet counterinsurgency unit. The encounters, especially the harrowing experience of hitting a landmine en route to Cuvelai in Angola, reveal the intense and dangerous environment into which these young men were thrust. The group dynamic is compelling. De Witt portrays their journey from *rowers* (new conscripts) to experienced soldiers over six months spent in Ovamboland, marked by hardship, loss, and personal growth. He gives readers a glimpse of the moments that solidified these friendships, recounting not just the traumas of war but also the light-heartedness and humour that kept them sane in the harsh realities of bush life.

An unusual but valuable segment of the book describes a few weeks' break "back to the States" (South Africa), offering a stark contrast to the war zone of Ovamboland. Here, he struggled to reconcile his war experiences with the relative normalcy of civilian life. This serves as a striking reminder of the psychological and emotional rift that had developed between those who had fought and those who had not. Upon returning to SWA in early 1983, De Witt and his comrades, now *Ou Manne* (seasoned troops), were assigned to Alpha Tower, a primitive base at Oshikango in sight of the *kaplyn*[10] with Angola, a post that marks a sombre change in the tone of the narrative. As De Witt warns readers, 'I have two kinds of friends in life – those who fought with me at Alpha Tower and those who didn't' (De Witt, 2023:214). This statement underscores the enduring effect of these shared experiences on his identity and relationships.

One of the strengths of *Bush Brothers* is its unflinching honesty and casual style, which contrasts with many personal accounts that adopt a more solemn tone. De Witt explicitly aims to go beyond the 'dry, sequential facts' of traditional memoirs, seeking instead 'to evoke the drama, humour, and complexity of … [his] service' (De Witt, 2023:9). From the opening chapters, De Witt succeeds in this objective. His writing is unapologetically candid, infusing the narrative with profanities and crude imagery, which lend realism and authenticity to the story. More significantly, De Witt captures the rough camaraderie and rawness of eighteen-year-olds isolated in the bush, where no topic is off limits and every day is lived in the present. His honesty about going AWOL (absent without leave), partying, girls, drinking, hangovers, and disobeying orders allows readers to feel as if they were on the ground alongside him, experiencing the highs and lows of his youth and army life.

A memorable episode during their first deployment after basic training illustrates this approach. One night, De Witt and three others were on duty at Beit Bridge, armed with a machine gun and a case of beer. In their inebriated state, a soldier accidentally discharged the weapon, firing across the Limpopo River towards the Zimbabwean side. The incident sparked a farcical chain of reprimands as it escalated, eventually reaching President PW

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[10] *Kaplyn* is an Afrikaans term that translates to "cutline" or "boundary line" in English. It specifically refers to a clearly demarcated strip of land, often cut through vegetation or bush, which served as a visible border or patrol route during the South African Border War. This line was usually cleared to enhance visibility and detect insurgent movement across border areas, particularly along the Angola–Namibia frontier.

Botha, who chastised his foreign affairs minister, Pik Botha. Pik, in turn, reprimanded General Constand Viljoen, who cascaded the blame down the chain of command until it reached the troops responsible who still claimed innocence. De Witt's retelling is both vivid and humorous, and anyone with military experience will relate to how military hierarchies respond to blame. This style of storytelling lends a sense of genuineness.

Aside from the humour, De Witt offers vividly detailed descriptions of the settings and people he encountered. The glossy photos from their war service add a layer of documentary realism, bridging the gap between memory and history. De Witt's descriptions are enriched by the journals he had kept during his service and corroborations from his former platoon and the Bush Brothers Reunited Veterans' organisation.[11] Recent photographs from reunions – some as recent as 2022 – further attest to the bonds forged during this shared wartime experience reflecting the title.

One area where *Bush Brothers* might attract criticism is in De Witt's reflection on the broader socio-political context of the war. While introspective reflections are not unusual in war memoirs, De Witt's occasional musings on his disdain for Apartheid and his criticism of Nationalist policies sometimes feel at odds with the youthful, somewhat reckless character he portrays in the rest of the narrative. His reflections on the political landscape might appear somewhat incongruous with the scenes of camaraderie and youthful bravado that dominate the book, pulling the reader out of the immediacy of the story. Some readers may feel that these contemplations would be more suitably placed in a dedicated conclusion or merged with the epilogue, where De Witt could address these more profound realisations from the perspective of his current, more mature self.

Nonetheless, *Bush Brothers* stands out as a fresh and valuable addition to Border War literature. De Witt's account reflects the qualities that make a memoir that truly echoes Luise White's observation of soldiers' writings. White, in her study on soldiers' memoirs, noted that readers often judge the authenticity of a story not only by its 'fighting' but by its 'pranks and jokes performed for an audience of like-minded young men' (White, 2021:29). Bush Brothers captures this sentiment perfectly, offering a "truthfulness" that extends beyond dates and battles to the very fabric of the soldiers' experience. While the book will undoubtedly resonate most strongly with those who experienced the war first-hand, it also holds significant appeal for general readers interested in war stories and military history. As a record of the South African Border War experience, *Bush brothers* is a significant contribution, not only opening a window into life as an infantryman during the war, but also depicting the camaraderie that shaped this generation of ex-soldiers during one of South Africa's most controversial conflicts. As De Witt concludes, 'For while it is my story, it is also theirs' (White, 2021:306).

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*Anri Delport* 🆔
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[11] A military veterans organisation founded by De Witt after being unexpectedly reunited with former friends from his army platoon.

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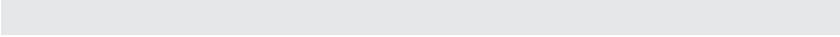
## *Book Review*

# Reflections on the complexities of the Covid-19 pandemic:
# Perspectives from the Global South

*Shadrack B. Ramokgadi and Mbekezeli C. Mkhize (eds)*

In *Reflections on the complexities of the Covid-19 pandemic: Perspectives from the Global South*, Ramokgadi and Mkhize critically examine the Covid-19 pandemic from multiple angles, including public health and socio-economic effects across international, regional, and national levels. The primary goal of the authors was to assess and discuss government responses, scrutinise public health strategies, and understand societal reactions. Their aim was to provide a nuanced understanding of how the pandemic exposed systemic vulnerabilities and ignited demands for public health as well as economic, governance, and civil–military reforms.

Ramokgadi, a researcher at the Centre for Military Studies (CEMIS) in the Faculty of Military Science at Stellenbosch University in South Africa, adopted a solid analytical approach grounded in his extensive experience in military and developmental research. Mkhize, an associate professor in International and Diplomacy Studies at the Thabo Mbeki African School of Public and International Affairs, University of South Africa (Unisa), contributed with his deep understanding of international relations and diplomacy. Their collaboration resulted in a comprehensive analysis of the diverse effects of the pandemic on the Global South. It is worth noting that the book also features contributions from various recognised scholars, each offering a unique perspective on the consequences of the pandemic.

An interdisciplinary approach was taken, utilising various sources, such as academic research, policy documents, and firsthand accounts. The methodology adopted by the authors was rooted in critical analysis, offering a balanced evaluation of different responses to the pandemic. The writing is accessible, making complex concepts clear to a wide audience while maintaining academic thoroughness. The originality of the work lies in its ability to weave together diverse themes into a cohesive discussion that highlights the complexity of the pandemic.

The book covers a wide range of themes, with one central argument being that the Covid-19 pandemic was not merely a health crisis but also a catalyst that exposed

and magnified existing global and societal weaknesses. The authors argue that, while some governments responded effectively, many failed to protect their most vulnerable populations. The analysis spanned multiple levels – international, regional, and national – providing a thorough examination of varied responses and consequences of the pandemic, with a particular focus on Africa.

The first section of the book effectively sets the stage for the broad analysis of civil–military relations by delving into how Africa managed the pandemic through the lens of securitisation. Chapters 2 to 5 emphasise the role of military organisations in responding to the pandemic, asserting that Covid-19 posed a threat to international peace and security. The theoretical exploration of the militarisation of health was examined through case studies, including Botswana, illustrating how African defence structures adapted to this unconventional security threat. The chapters suggest that, while securitisation may be contentious, it was a necessary response to the unprecedented nature of the pandemic.

The second thematic focus explores the changing dynamics of civil–military relations during the pandemic, as discussed in Chapters 6 to 9. The deployment of military forces in South Africa and other parts of Africa led to new tensions and debates about the role of the military in civilian life. The chapters report on these tensions from legal and policy perspectives and introduce the concept of civil–military partnerships as an emerging approach to crisis management. This shift from traditional civil–military relations towards partnership highlights the collaborative efforts needed to combat such widespread health emergencies.

The third major theme of the book is the ripple effects the pandemic had on society, politics, and the economy. Chapters 10 to 13 detail how lockdowns and other measures disrupted economic activities, exacerbated political tensions, and strained the defence industry. Case studies from South Africa, Namibia, and Latin America illustrate the global nature of these challenges. The analysis in these chapters is robust, linking the consequences of the pandemic for broader theoretical frameworks, such as rational choice theory and organisational theory. The discussion also suggests that the pandemic has opened new avenues for research on civil–military relations and partnerships.

The penultimate section of the book focuses on the multifaceted challenges posed by the pandemic, particularly in Africa. Chapter 14 highlights the health security crisis that emerged on the continent, emphasising the need for improved emergency procurement systems. The effect on education, referring to a "lost generation", is especially concerning, with long-term implications for both primary and secondary education and development (Horton, 2021). Chapter 15 focuses on corruption, particularly in South Africa, where irregular procurement practices undermined efforts to combat the pandemic. These chapters provide critical insights into how the pandemic exposed and exacerbated existing vulnerabilities in African governance and development.

The book concludes by synthesising the thematic insights, and offering recommendations for future research and policy. The concept of civil–military partnerships emerges as an important action point, advocating for a more integrated approach to managing

complex emergencies. The authors argue that the pandemic has not only challenged traditional security paradigms but also prompted a rethinking of how military and civilian institutions could collaborate more effectively. This integrative approach is supported by a comprehensive review of the literature, providing a solid foundation for future studies on public security in the context of global health crises.

Positioned within the broader literature on global crises and pandemics, the book contributes to ongoing debates about the effectiveness of international cooperation and national responses. It complements other works on Covid-19; such as *The Covid-19 Catastrophe: What's gone wrong and how to stop it happening again* (Horton, 2021),[12] and *The pandemic century: A history of global contagion from the Spanish flu to Covid-19* (Honigsbaum, 2020) – by offering a holistic analysis that links public health to socio-economic and political dimensions. Compared to other books in the field, *Reflections on the complexities of the Covid-19 pandemic: Perspectives from the Global South* stands out for its interdisciplinary approach and critical analysis. While other works may focus solely on the health aspects of the pandemic or case studies from specific countries, this book provides a wide-ranging overview, making it a valuable resource for scholars and policymakers alike.

The authors succeeded in achieving the purpose of the book by offering a well-rounded assessment of the public health systems, governance structures, and socio-economic policies in the Global South as well as the after-effects of the pandemic. The strengths of the book lie in its broad scope and insightful analysis, although a potential limitation is that generalisation in some areas could have benefited from more detailed case studies. For example, the discussion on the economic consequences of lockdowns across Africa could have been enriched by in-depth analysis of specific countries, such as Kenya or Nigeria, where unique challenges and responses could provide a more nuanced understanding.

In conclusion, this book is a timely and thought-provoking work that significantly contributes to understanding the far-reaching effects of the pandemic. Its implications for future research and policymaking are profound, making it essential reading for those interested in global health, governance, and socio-economic resilience. The book is accessible to a wide audience, including academics, policymakers, public health professionals, and anyone interested in the broader implications of the Covid-19 pandemic.

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[12] A notable work by Richard Horton that examines public health failures.

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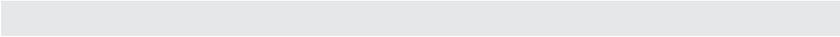
*Book Review*

# Cultural security: Theory – Selected aspects – Case studies

*Elżbieta Szyszlak, Rafał Wiśniewski and Radosław Zenderowski (eds)*

The volume *Cultural security: Theory – Selected aspects – Case studies*, edited by Elżbieta Szyszlak, Rafał Wiśniewski and Radosław Zenderowski, offers a diverse array of research perspectives, and elucidates the intricate, multifaceted nature of the relatively new concept of cultural security. Published by Peter Lang, this book is an insightful compendium of the works of Polish scholars on the topic of cultural security, presenting a compelling genesis of this discipline, and underscoring its interdisciplinary character. The collection of 19 essays, penned by 20 authors, comprises the 53rd volume in the series Studies in Politics, Security and Society, overseen by series editor Stanisław Sulowski. Since 2015, the monographs and collective volumes published within this series have been showcasing the research pursued by both Polish and Eastern European scholars on the theoretical and practical dimensions of politics and security policy.

The editors of *Cultural security* are interested in the cultural security of the state, which provides a framework for the protection of cultural identity and heritage. The lucid structure, of the book organised into three distinct parts, enables readers to engage with the material selectively, according to their specific research interests, or to read it sequentially, according to the layout of the chapters. The latter approach facilitates a progression from theoretical considerations to practical applications of cultural security. A notable strength of this volume is its grounding in empirical realities and concrete case studies. Even the first and second sections, which delineate theoretical frameworks and examine particular aspects of cultural security, remain closely linked to tangible solutions enacted within socio-political contexts. Meanwhile, the contributors to the third section offer an incisive analysis of cultural security from the vantage point of selected European and non-European states.

The opening section, covering cultural security in theoretical and methodological dimensions, seeks to define the notion of cultural security by introducing the issue and various concepts related to it. The section begins with a cogent and historically grounded essay by Marek Bodziany. While the discipline of cultural security emerged at the end of the twentieth century, the interrelationship between culture and security extends back to antiquity – or even earlier – when culture signified ethnic distinctions. The emergence

of cultural security issues was a natural outcome of wider social processes, with the catastrophic events of the two world wars in the twentieth century, serving as a catalyst for the development of research into the culture–security nexus. In this context, the post-Cold War era proved transformative, as the resulting geopolitical changes, particularly in Europe, required fundamental rethinking of the prevailing security paradigms, with an increasing emphasis on non-military dimensions of security.

In the academic debate, this shift was articulated by representatives of the Copenhagen, Welsh, and Paris schools, although these approaches 'do not fully reflect the essence of cultural security' (p. 27). Nevertheless, several of the contributors to the volume draw on these intellectual traditions. Sebastian Wojciechowski proposes the pentagonal model of cultural security, which can be analysed across local, regional, and global levels. Krzysztof Cebul explores the intersection of cultural security and security culture, prompting a critical inquiry into the ideological foundations of cultural security. This question is further explored in the final essay of the section where Anna Kurkiewicz offers a novel narrative, challenging prior assumptions, and invoking the concept of myth.

The second section of the book, 'Selected aspects of cultural security', begins with an in-depth analysis of contemporary and emerging threats to cultural security, particularly those related to religion, ethnic minorities, and migration. Andrzej Szabaciuk discusses the securitisation of discourse surrounding migration processes as a tool in the politics of fear (p. 78). Tomasz Szyszlak presents the cultural security system as a subsystem of national security, while Jarosław Jarząbek delves into the role of cultural security in the politics of security of the state. These discussions highlight the crucial need to consider cultural factors in the design of national security systems. If cultural security is to function as an integral subsystem of national security, it naturally requires careful and systematic management, including intersectoral coordination. Elżbieta Szyszlak, in turn, offers an insightful analysis of cultural security in the context of minority groups, particularly ethnic minorities, emphasising the necessary balance between protection and development of cultural security, which can be achieved by 'drawing on the culture of the majority' (p. 117). Ireneusz Jaźwiński points to the significance of economic factors, including human capital, in shaping cultural security. The education system plays a pivotal role in this regard, creating a direct link with cultural security. The final two essays in this section address the influence of religion on cultural security. Mariusz Sułkowski posits that the role of religion is intensifying, especially in light of demographic factors and globalisation. Joanna Kulska then explores cultural security in the context of faith-based diplomacy.

The third section of this edited book consists of several case studies, which encompass both European and non-European countries with diverse historical experiences and current potentials. In addition to exploring the cultural security of individual states (Poland, Lithuania, Serbia, Bosnia and Herzegovina, Israel, Iran, Germany), the section also addresses the cultural security of the European Union. Michał Gierycz and Piotr Mazurkiewicz, in their analysis of the European project and its implementation, argue that 'the EU's actions in recent decades seem to have weakened Europe's cultural security rather than strengthened it' (p. 288). Those following the escalating conflict in the Middle East may be particularly interested in the chapters on Iran and Israel. Radosław Fiedler

traces the foundations of Iranian cultural security to Khomeini's doctrine and its official anti-Western stance, which stands in sharp contrast to the 'Iranian society [that] would like to see an opening to cooperation, as well as a cultural opening to the West, particularly the United States' (p. 233). To support this claim, Fiedler references a 2002 survey (the most recent opinion poll on this issue) in which 70% of Iranians expressed support for restoring relations with the United States. The ongoing conflict with Israel, which has targeted Hezbollah's assets in Iran and Lebanon (autumn 2024), along with Iran's growing ties with China and the outcome of the 2024 United States presidential elections, could however profoundly change the socio-political landscape and influence the Iranian cultural security in the near future. Marcin Szydzisz offers a comprehensive analysis of Israel's cultural security as understood by its authorities, identifying threats that are unique to the Israeli context: geopolitical considerations, the Arab environment, efforts to delegitimise Israel (e.g. through the Boycott, Divestment, Sanctions movement [BDS]), internal tensions between secular and religious Jews, demands for equality from various Jewish denominations, and finally, migration. Nevertheless, the reduction or degradation of Israeli culture seems unlikely, as some of the perceived threats (e.g. the Arab environment or migration) paradoxically serve to reinforce it.

Cultural security involves not only the preservation of tangible heritage and monuments, as the authors of subsequent chapters demonstrate, but also the safeguarding of elements that constitute the cultural identity of a given community and the institutional framework that should be integrated with national security. The cultural aspect of state security – alongside military, economic, demographic, and digital factors – is rarely addressed in scholarly literature with the comprehensive approach offered by this book, distinguishing it notably from other publications on the subject. The editors are guided by the conviction that, while contemporary political dynamics exert substantial influence over the construction of cultural heritage narratives, 'there is always an unchanging cultural core, a set of socially preserved symbols and traditions, and objects of vital importance for a given culture, with a fundamental role in maintaining cultural security' (p. 13). This assumption may not appeal to all scholars, although its influence does not weigh upon the chapters that follow.

*Cultural security* constitutes a significant contribution to the evolving field of cultural security studies. It systematises key conceptual issues, critically examining the challenges and threats, while also delineating possible new research directions. Interesting bibliographies direct readers toward further scholarly engagement, with a significant portion of the referenced works authored by Polish researchers. While it may be premature to speak of a distinctly Polish school of cultural security, the growing interest among Polish scholars in this discipline – especially in its relation to the state and security policy – is undeniably evident. This is also evidenced by the book under review.

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*Book Review*

# Routledge handbook of the future of warfare

*Artur Gruszczak and Sebastian Kaempf (eds)*

In his short story, 'Superiority', science fiction writer Arthur C Clarke (1951) writes about an imagined future where the most advanced technological power eventually loses a war because it is constantly updating its systems – introducing them before they become fully operational – while its enemy continues to add to its arsenal of older but usable weapons. It is with this observation – and with a warning not to overemphasise the pace of technological change – that Christopher Coker (2024) opens his chapter 'Thinking about the future of war' in the *Routledge handbook of the future of warfare* (2024) edited by Artur Gruszczak and Sebastian Kaempf. Coker highlights how the pursuit of technological advantage may not always be the automatic gain it is presumed to be. In doing so, he asks us to think carefully about the volatilities and uncertainties inherent in thinking about the unknown future. While it is difficult to do justice to its 39 chapters in a single review, the *Routledge handbook of the future of warfare* is certainly thought-provoking. The unifying theme – accelerated transformation in contemporary society, and its potential effects on warfare – runs across specific chapters on technoscience, military artificial intelligence, military neuroenhancement, and counterspace warfare, but also on broader effects in irregular and unconventional warfare, terrorism, remote warfare, and post-modern warfare. While this may appear confusing at first, the editors have organised the chapters in six sections by considering approaches, systemic variables, concepts and theories, specific technologies and local contexts, and general trends currently emerging informing interpretations of the future.

Part I deals with approaches and methodologies for studying future war. Both the chapter by Heuser and the one by Lacy note the folly of trying to predict future events with precision combat, and also the limits of tools and techniques of scenario planning, horizon scanning, and futures thinking at a time of technological change and transformation. But it is precisely this technological acceleration and geopolitical uncertainty that require thinking about strategic vision – as both intellectual research and practical policy. There have, of course, been recent books on strategic issues such as Coker's *Future war* (2015), Freedman's *The future of war* (2018) and Mick Ryan's *War transformed* (2022) dealing with the relation of science, technology and war and the evolution of warfare. The *Routledge handbook of the future of warfare* serves as a comprehensive yet diverse collection dealing with the main theories and conceptions of warfare (Part III), structural complexity (Part IV), as well as the weaponisation of new domains, such as cyber space, artificial intelligence, and quantum sciences (Part V).

The seven chapters in Part V – 'Technoscience' – strikes the right balance between its focus on technical aspects of the application of technology in warfare, and their potential impact on human society and political domains. Elke Schwarz's chapter on the integration of artificial intelligence (AI) into military operations accurately explains advanced machine learning and neural networks enabled by AI, but does so in the context of moral agency and ethical practice. Austin Wyatt's chapter on lethal autonomous weapon systems engages with questions about meaningful human control, and the debate about autonomy and human–machine teaming. Wyatt comments on the lack of meaningful progress by the international community in adopting a normative approach through an international legal instrument. Similarly, James Der Derian and Stuart Rollo's chapter on quantum warfare, situates the still emerging but nonetheless radical transformation of quantum technology in the context of power rivalries in international security and systemic political changes. The authors conclude that there is a need to develop new practical and ethical frameworks for the quantum future.

Measuring the impact of new and future technologies will need to take into account complex factors, including those in the economy, demography, climate change, ideologies, and other inter-linked factors, which are themselves in constant movement. The editors are careful to emphasise that the focus of the book is prognostic rather than futuristic. This is echoed in the first chapter by Beatrice Heuser, Joachim Isacsson and Olaf Theiler. These authors note that, in the military realm, the normal form of progress is evolutionary and not revolutionary. Short-term prediction forecasting mostly fails when it comes to disruptive new technologies, as these fail to account for the long-term frames for technology development, slow military adaptation and acquisition, and the time needed for their integration into new military doctrines. Time for testing in training before new technologies can be used successfully also needs to be considered. To gain an overall vision of the future of warfare, as Heuser *et al.* (2024:20) conclude, 'there is no way around the detailed engagement with complexity, with multiple and disagreeable future scenarios'. In meeting this challenge, the two editors, Artur Gruszczak, chair of National Security at Jagiellonian University in Krakow, Poland, and Sebastian Kaempf, associate professor at the University of Queensland Australia, have brought together a stellar group of over 40 contributors to produce a comprehensive publication on future warfare. These include leading scholars who may be well known to readers – authorities, such as Mary Kaldor, Alex J Bellamy, Sebastiaan Rietjens, Christopher Coker, James Der Derian, and Beatrice Heuser – but also a number of postdoctoral researchers, PhD candidates, and specialist authors, who offer cutting-edge contributions on the most recent developments. The result is a diverse publication presenting a variety of theoretical and epistemological perspectives to understand the research and debates on the foreseeable future of warfare. There have been very good single author monographs recently, such as Paul Scharre's *Army of none* (2018) and Kenneth Payne's *I, warbot* (2021), but the collection of chapters here offers a wide-ranging yet theme-specific approach that will certainly be of interest to students of strategic studies and international relations attentive to a dynamic overview.

Something ought to be said also about the Routledge handbook series more generally, for instance the *Routledge handbook of war, law and technology* (Gow, Dijxhoorn, Kerr & Verdirame, 2019), as the volumes being produced are rapidly becoming indispensable in university libraries and in researchers' collections. This current handbook is no exception.

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*Book Review*

# Introduction to remote sensing

*James B Campbell, Randolph H Wynne, Valerie A Thomas*

In this sixth edition of *Introduction to remote sensing*, *Campbell, Wynne and Thomas* continue setting the standard in the field of remote sensing. This edition – now in full colour – introduces new chapters that delve into remote sensing platforms, including the latest advancements in satellite and unmanned aerial systems. Additionally, this edition expands on agricultural analysis via satellite imagery and forestry applications, such as fuel type mapping and fire monitoring. These additions reflect the rapid technological advancements and the growing importance of remote sensing in various fields.

*Introduction to remote sensing* serves as a dual-purpose resource: acting as both an accessible introduction to remote sensing and as a foundational reference. For those specialising in remote sensing, the book provides not only an introductory framework but also a basis for more advanced study. The authors introduce key topics in remote sensing while acknowledging the need for further depth in specialised areas.

Previous editions of *Introduction to remote sensing* have been instrumental in educating tens of thousands of students on the core principles of collecting, analysing, and interpreting remotely sensed images. The authors present state-of-the-art tools and practical applications pertinent to land and water use analysis, natural resource management, and climate change adaptation. Each chapter is meticulously crafted as an independent unit, allowing instructors the flexibility to tailor their teaching sequence. This modular approach ensures that the book can be adapted to different course structures and learning objectives, making it a versatile resource for educators.

The instructional features of *Introduction to remote sensing* are robust and thoughtfully designed to enhance the learning experience. With over 400 figures, chapter-opening topic lists, case studies, end-of-chapter review questions, and links to recommended online videos and tutorials, the book provides a comprehensive suite of learning aids. These features not only help to illustrate complex concepts but also encourage critical thinking and practical application of the material.

Each chapter of this edition begins with a list of major topics and includes new case examples, such as the Oso River debris flow in Washington State, to illustrate key concepts. Chapters conclude with review questions to reinforce the material covered. Additionally,

many chapters feature a short list of teaching and learning resources, primarily online tutorials or brief videos, such as those on YouTube. These resources, selected for their brevity (most are under 3–4 minutes) and effectiveness, provide additional depth or breadth to the chapter content. Promotional videos have been largely excluded, except where they present technical content effectively without endorsing specific products or services.

Noteworthy additions to this edition are discussions on Landsat 8 and Sentinel-2, the burgeoning field of unmanned aerial systems, mobile data collection, and contemporary directions in climate change detection, fire monitoring, and disaster response. These topics are particularly relevant given the current global focus on environmental monitoring and disaster management. The inclusion of these discussions ensures that students are well informed about the latest technologies and methodologies in the field.

*Introduction to remote sensing* also incorporates new case studies, such as river erosion, the impact of Hurricane Sandy on Mantoloking, New Jersey, and the challenges faced by coastal communities, such as Miami Beach. These case studies provide real-world examples of how remote sensing can be applied to address pressing environmental issues. The authors also highlight the practical implications of the theoretical concepts discussed in the book, bridging the gap between theory and practice.

With 60% of the material revised and hundreds of new full-colour figures, this edition is significantly enhanced (Guilford Press, n.d.). These updates ensure that the content remains current and relevant, reflecting the latest developments in remote sensing technology and applications. This comprehensive and up-to-date resource is invaluable for students and professionals alike, offering a thorough grounding in the fundamentals of remote sensing while also exploring advanced topics and applications.

*Introduction to remote sensing* provides a clear and thorough introduction to the fundamentals of a rapidly evolving, interdisciplinary field. This book has prepared a generation of remote sensing scientists and remains highly relevant today. The focus of this sixth edition of *Introduction to remote sensing* on unmanned aerial systems and small satellites is timely, with an increased emphasis on digital imagery and its processing. Suitable for both undergraduate and graduate students, the book offers ample content for one or more remote sensing courses. The book effectively covers land remote sensing, addressing natural, urban, ecological, hydrological, and other land-cover and land-use applications. For students not pursuing remote sensing beyond the introductory level, this book offers a broad overview, helping them understand applications in the field across various disciplines and their significance in the contemporary world. The primary focus for many will be on chapters and methods most relevant to their major field of study.

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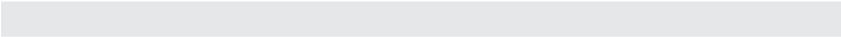
# NOTES TO CONTRIBUTORS

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