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A Market Reduction Approach to Illegal Ivory Markets in Tanzania

'Hands off my Ivory'- Taken by Laxmi Aggarwal, Serengeti National Park, 2018. Winner of Images of Research Competition NTU 2019

A thesis submitted in partial fulfilment of the requirements of Nottingham Trent University for the degree of Doctor of Philosophy

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Dedicated to the lost elephants of Tanzania and the participants of this study.

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Statement of Originality

I declare that the work presented in this thesis is, to the best of my knowledge, original and my own work, except as acknowledged in the text. The material, presented as my own, has not been submitted previously in whole or in part for a degree at another institution.

Abstract

The illegal wildlife trade varies widely regarding species and geographical variance, necessitating niche and tailored research. Against this background, this study on elephant poaching in Tanzania was conducted at the intersection of qualitative, crime reduction and science, and conservation criminology from a decolonised perspective. This research investigates the suitability of the Market Reduction Approach (MRA) (Sutton, 1998) for illegal ivory markets. Developed for stolen goods, the MRA emphasises understanding illicit markets through offenders' risk perceptions and the dynamics from theft to sale. This understanding provides tailored solutions, instead of a one-size-fits-all solution, to disrupt markets and increase the risks and efforts of those operating in the markets. The MRA guides this real-world research to understand Tanzania's illegal ivory markets and some of the most consequential actors (the poachers and the fences) contributing to species decline.

Methods: Findings are reported from 67 in-depth, semi-structured interviews with park rangers (Ruaha and Serengeti National Park) (n=33), police and National Task Force Anti-Poaching (NTAP) officers (n=6), potential poachers (n=11), alleged poachers in prison (n=10) and other stakeholders (legal prosecutors, village chief, anti-poaching personnel, lodge manager and professional hunter) (n=7). Interview recordings are transcribed verbatim from Swahili to English before applying a Thematic Analysis (TA) approach, organised in NVivo® to obtain clusters of meaning informed independently by this study and the MRA where possible.

Results: This study provides a detailed overview of how poachers and traders are recruited, what motivates them, how they perceive elephants and their morality of criminal motivation when operating in illegal ivory markets. The data show how, where and when the theft of ivory occurs and how the successfully stolen tusks are transported, stashed, disguised, concealed, sold, and readied for export. The discussion presents findings of the unintended MRA on guns and ammunition. The data are used to discuss and create typologies of the distributors of stolen ivory and the types of illegal ivory markets operating in Tanzania.

Conclusion: The study proposes 30 responses and considerations to disrupt illicit ivory markets up to the point of export out of Tanzania as detailed explanations and table format. The study concludes that the MRA is suitable and beneficial to understanding illegal wildlife markets and proposes a longer-term implementation of the MRA for wildlife conservation from a crime prevention perspective.

Keywords: Crime Prevention, Conservation Criminology, Elephant Ivory, Environmental Sociology, Green Criminology, Illegal Markets, Stolen Goods, Tanzania, Wildlife Crime.

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Abbreviations

APPs - Alleged Poached Participants

ARES - African Elephant Status Report

CAPTURED - Concealable, Available, Processable, Transferrable, Useable, Removable, Enjoyable, Desirable

CBD - Convention of Biological Diversity

CHAWAPILA - Chama cha Waendesha Piki-piki Wilaya ya Ilala

Chinese Transnational Criminal Organisations – TCOs

CID - Criminal Investigation Department

CITES - Convention on International Trade in Endangered Species of Wild Fauna and Flora

COC - Central Organising Concept

COP - Conference of the Parties

COSTECH - Tanzania Commission for Science and Technology

CPT - Crime Pattern Theory

CPTED - Crime Prevention Through Environmental Design

CRAVED - Concealable, Removable, Available, Valuable, Enjoyable, and Disposable

CSR – Corporate Social Responsibility

CTC - Communities That Care

DNA - Deoxyribonucleic Acid

DoS - Director of Studies

DTP - Director of Public Prosecution

EIA - Environmental Investigation Agency

EPI - Elephant Protection Initiative

GDP - Gross Domestic Product

GPR - Ground Penetrating Radar

GT - Grounded Theory

HEC - Human-Elephant Conflict

IUCN - International Union for Conservation of Nature

IWT - Illegal Wildlife Trade

JKT - Jeshi La Kujenga Taifa

KWS - Kenyan Wildlife Service

MIKE - Monitoring the Illegal Killing of Elephants

MNRT - The Ministry of Natural Resources and Tourism

MO - *Modus Operandi*

MRA - Market Reduction Approach

MTs - Metric Tonnes

NBSAP - National Biodiversity Strategy and Action Plan

NGO - Non-governmental Organisation

NIAPs - National Ivory Action Plans

NM-AIST - Nelson Mandela African Institute of Science and Technology

NTAP - National Task Force-Anti Poaching

OSPs - Other Stakeholder Participants

PA - Protected Area

PAR - Participatory Action Research

PIKE - Proportion of Illegally Killed Elephants

POP - Problem-Oriented Policing

PPPs - Potential Poacher Participants

PPs - Police Participants

RAT - Routine Activity Theory

RCP - Rational Choice Perspective

RPs - Ranger Participants

SALWs - Small Arms and Light Weapons

SARA - Scan, Analyse, Respond and Asses

SCP - Situational Crime Prevention

SGMs - Stolen Goods Markets

SIMs - Stolen Ivory Markets

SLR - Self-Loading Rifle

SMG - Sub Machine Gun

TA -Thematic Analysis

TAM - Traditional Asian Medicine

TANAPA - Tanzania National Parks Authority

TAWIRI - Tanzania Wildlife Research Institute

TCM - Traditional Chinese Medicine

TRAFFIC – Trade Records Analysis of Flora and Fauna in Commerce (Wildlife Trade Monitoring Agency)

TSh - Tanzanian Shillings

UN - United Nations

UNEP - United Nations Environment Programme

UNESCO - United Nations Educational, Scientific and Cultural Organization

UNWTO - United Nations World Tourism Organization

USD - American Dollars

USGs - Urban Stolen Goods

UWP - Umoja wa Waendesha Piki-piki Mkoa wa Mwanza

VIVA - Value, Inertia, Visibility and Access

VPN - Virtual Private Network

WCS - The Wildlife Conservation Society

WWF - World Wildlife Fund

Glossary

The following table presents the definitions of terms used throughout this document, including those defined by this study and others that are pre-defined and relevant to this study.

Term	Definition and source
Anthropomorphism	*"…attributing human traits to animals and other entities…"* (Sueur, Forin-Wiart & Pelé, 2020, p.1),
Alleged poacher	Participants interviewed in prison alleged to have committed illegal ivory poaching or trading.
Anti-poaching	Preventing poaching through different means, e.g., patrols or laws (Duffy, 1999; Merriam-Webster Dictionary, 2021).
Bushmeat	The meat of wild animals taken legally/illegally for sustenance (Nyaki et al., 2014; Wyatt, 2013).
Corridor	Ecological connectivity and linking pathways between core areas relating to elephant migration (Bennett & Mulongoy, 2006; Dudley, 2013).
Culling	To separate or kill animals to reduce diseases or population size due to human-wildlife conflict (Aarde, Whyte & Pimm, 1999; Shannon et al., 2013).
Decolonised	The process of a former colony gaining independence extended to undoing colonial ideology, research, and practice (Adams & Mulligan, 2003; Agozino, 2021; Said, 1978; Smith, 1999).
Disorganised crime	Crime activities that do not rely on structure or organisation with little to no use of violence to ensure compliance (Reuter, 1986; Wyatt, van Uhm & Nurse, 2020).
End-consumer market/user	The final market or buyer of illegal raw or worked ivory.
Endangered species	Flora or fauna threatened or at risk of extinction (WWF, 2021).
Environmental crime or green criminology	Harms, crimes and damages against the environment, including specific flora and fauna (Bottoms, 2012; Brisman, South & White, 2016; White, 2008).
Environmental criminology	Traditional criminology on crime, victimisation, and criminality and the socio-spatial environment in which they occur (Bottoms, 2012; Brantingham & Brantingham, 1991; Jeffery, 1977).
Hunting	Hunting is prohibited in outlined areas without pre-acquired permits or in violation of the terms of the license. (MNRT, 1974, p.6).
Illegal Wildlife Trade (IWT)	A multibillion-dollar illicit industry trading in the unlawful harvest, extraction, sale, and trade of whole or parts of flora and fauna (Wyatt, van Uhm & Nurse, 2020; 't Sas-Rolfes et al., 2019; US Fish & Wildlife Services, 2021).

Impact investment	Investment in good practices contributing to measurable positive social and environmental impacts with possible financial returns (GIIN, 2021).
Lakh	An Indian numbering unit equal to one hundred thousand.
Mpesa	Mobile money transfer
Organised crime	Controlled large-scale criminal operations led by influential leaders who often rely on corruption and violence (Paoli, 2014; Wright, 2006).
Potential poacher	Participants believed to be actively engaged in illegal poaching and trading of elephant ivory.
Professional hunter	Individuals paid to provide legal hunting services (Bird, 2018; Hemingway, 2015; Leader-Williams, Kayera & Overton, 1996).
Rangers	Enforcement employed by national parks, conservation areas and Wildlife Management Areas (WMA) to enforce the Wildlife Conservation Act, 2013 of Tanzania (MNRT, 2013).
Smallholder farmers	Individuals operating small-scale agricultural models for cash crops to maintain their primary source of income and food security (Meemken & Bellemare, 2020; Nyambo, Luhanga & Yonah, 2019; Vignola et al., 2015).
Source country	Countries where legal/illegal ivory is sourced.
Stakeholder	Individuals and organisations involved in either tourism, anti-poaching (legal or physical), hunting, poaching, or trading of legal/illegal ivory.
Supply chain	A network of individuals or companies located in different geographical locations (national or international) who are interdependent to facilitate trade in or the movement of a commodity or consignment (Austin, 2019).
Threatened species	Flora or fauna that are vulnerable to endangerment (Possingham, Lindenmayer & Norton, 1994).
Trophy	The legal killing of selected animals under government licences and permits to attain the animal's head, skin tusks or other parts (Carwardine, 2020; Mitchell et al., 2021).
Tusk and teeth	This study refers to tusks as elephant ivory tusks. Due to the direct translation from Swahili, it is used interchangeably with teeth. Not to be confused with the molars of the elephants, historically also used for carving.
Wildlife	Any plant or animal in the wild (Burgener et al., 2001; South & Wyatt, 2011).
Wildlife crime	Actions that go against national and international laws, regulations and legislation that govern and legally protect wild flora and fauna. Activities include exploitation, poaching, uprooting, capture, extraction, collection, laundering, transportation, and concealment (CITES, ND; South & Wyatt, 2011; Nurse, 2011).

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Chapter 1: Introduction

> *"I stand through the sunroof one final time, face caked in dust as I metaphorically wave goodbye. Tears roll down, parting the dirt like a river through a starved desert. I close my eyes, imprinting the image as an elephant beats the earth from its bunched grass under the hot Tanzanian sun."* **Laxmi Aggarwal, 10 y/o, Serengeti National Park**

The above is taken from a school project where I, like many others, developed an affinity for elephants, although they were second to the leopard if I recall correctly. So, when this imprint increasingly became a rare sighting, I decided to immerse myself in exploring promising non-conventional approaches to do my part in helping the herds and aspiring to make a difference.

Environmental criminology provided the perfect framework for developing this interest. I initially perceived poaching as a *regular* (traditional) crime - poachers entering reserves to kill, steal and sell. Immersion in literature led me to the Market Reduction Approach (MRA) to stolen goods markets (SGMs) by Dr Mike Sutton (Sutton, 1998, 2010). This helped develop my initial ideas on ivory and theft as part of this PhD journey. It also fuelled a drive to explore the views of ivory *poachers,* often ignored by Western media, to better understand the complications of elephant ivory poaching in Tanzania.

This study is based on 67 in-depth interviews undertaken between 2018 and 2019 with enforcement officials, alleged and potential elephant ivory thieves/ poachers, handlers of stolen ivory and stakeholders in Tanzania's law and tourism sectors. The study examines the nature and extent of the theft of ivory from elephants and protected areas (PAs) and the commonly used methods of selling the stolen ivory up to the point of export out of Tanzania. It shares the considerable influences of the stolen ivory markets (SIMs) on the decisions to begin and continue stealing and dealing in elephant tusks.

This introduction provides the background context of this thesis and the context of this study. It also outlines the main research question, and the guiding aims and objectives. Primarily, it addresses the definition of critical terms and considerations integral to this study. The introduction indicates the need to explore an MRA through the data shared by participants to identify crime prevention priorities and responses for SIMs. Consequently, the chapter also highlights the methods used to realise this study and the limitations of the method design. Thereafter, this chapter shares a breakdown of the empirical chapters.

1.1 Definitions

The definitions integral to this study's understanding and purpose are presented and discussed here. Please also see the Glossary for other terms and definitions used throughout the study.

1.1.1 Poaching, Poachers, and Fences

Poaching (Eliason, 1999; Montgomery, 2020; Muth & Bowe, 1998) can be broadly divided into commercial (trophy) (Lunstrum & Givá, 2020; Massé & Lunstrum, 2016) and subsistence (food or medication) (Brashares et al., 2004; Milner-Gulland & Bennett, 2003; Ripple et al., 2019), with the former aligned to this study. The origins of the illegal act of poaching stem from the 18th-century European aristocrats looking to protect their wild game and resources (Encyclopaedia Britannica, ND; Kirby, 1933; Manning, 1993). Later, the act of poaching, like many acts of crime, transcended through a colonial lens to favour colonisers while excluding the local populations (MacKenzie, 1997; Neumann, 2004; Steinhart, 2006). Consequently, the label of a poacher is controversial when local traditional practices are criminalised, and local populations are negatively targeted (Von Essen et al., 2014). This has resulted in a non-deviant sub-culture that is accepting of poaching (Forsyth, Gramling & Wooddell, 1998; Forsyth & Marckese, 1993; Phillips, Mitchell & Murrell, 2014), influenced by human-wildlife-conflict (Moreto, 2019; Muth & Bowe), commercial gain (Muth & Bowe, 1998; Wyatt, 2013) and opposition to colonialism (Gibson, 1999) or the political economy (Bell, Hampshire & Topalidou, 2007; Campbell et al., 2000).

Whilst clearly a contested term, this study understands poaching in the commercial sense as the premeditated crime of intentionally entering and taking wildlife resources now prohibited by the law. Consequently, this research refers to participants with experience in elephant poaching as *poachers* despite the controversies. The other actors in unlawful ivory markets also include the traders known as the fences. The labels are included to allow the readers to understand which actor is referred to within the data.

The role of the *fence* is to buy stolen property from the thieves to sell forward to a consumer or another trader. The term stems from *defence* dating back to the 17th century, as the buyer of stolen goods prevents the detection of thieves from the law (Sutton, 2014b). At the same time, the fence also creates layers of defences to avoid their detection by instructing a multitude of thieves and other traders (Steffensmeier, 1986). This study refers to all buyers of *stolen* (poached) ivory in Tanzania as a *fence.* However, due to participants' use of slang and the direct translations from Swahili, these data also refer to the fence interchangeably with *sponsors, bosses*, *buyers,* and *traders* of illegal ivory.

1.1.2 Theft: Stolen Wildlife and Stolen Goods

The United Kingdom's Theft Act of 1968 (Gov. UK, 1968) defines theft as:

> *"A person is guilty of theft if he dishonestly appropriates property belonging to another, to permanently deprive the other of it."* (Gov.UK, 1968, p.1)

Under Property, Section 4 (Gov.UK, 1968), wild animal cases are not considered theft. Instead, other acts specifically concerning poaching are used to mark an offence. The Act then necessitates that guilt is established based on the knowledge of goods being stolen. As part

of the Commonwealth of Nations, Tanzania has a similar definition of theft (Tanzania Penal Code, 1981, p.82).

Although the Tanzania Penal Code does not necessitate knowledge of stolen goods, it does elaborate that theft occurs when one intends to permanently deprive another individual of it (Tanzania Penal Code, 1981). Moreover, according to the Tanzanian Wildlife Conservation Act of 1974 (MNRT, 1974, p.28), all trophies are government property, making it illegal to be in possession at any moment of protected wildlife, unless with proof of permits, that is to say:

> *"(a) any animal which has been killed or captured without a licence, permit, permission or authority, granted under this Act, and any part of any such animal;*
>
> *(b) any animal which is found dead, and any part of any such animal;*
>
> *(c) any animal which has been killed in defence of life or property and any part of any such animal;*
>
> *(d) any trophy which is in the possession of any person who is unable to satisfy the Director that he lawfully acquired the same;*
>
> *(e) any trophy in respect of which a breach of the provisions of this Act has been committed;*
>
> *(f) any animal or trophy or class of animals or trophies which the Minister may, by order in the Gazette, declare to be Government trophy or trophies."*

It then goes on to state:

> *"67.-(1) No person shall be in possession of or buy, sell or otherwise deal in any Government trophy." (MNRT, 1974, p.29)*

For further information on penal sanctions associated with the unlawful possession of trophies in Tanzania, see Magalla (2018). By defining the unlicenced acquisition of ivory as theft, there is a possibility of using the MRA for illicit ivory markets in Tanzania. However, it must be noted that this can be viewed as theft from elephants or, as defined above, theft of national property. This brings into debate animal rights founded on animal behaviour and, to some extent, anthropomorphism (discussed in more detail in Appendix 3). With previous instances where elephants have been allowed to stand trial (Appendix 3), it is vital to question elephant interests, not necessarily rights and the harm caused to them during the theft of their ivory.

Due to the current lack of legislation to support animal interests and rights, this thesis uses this section to identify the theft of ivory based on the existing laws discussed above, thus making it plausible for the MRA to be applied to illegal ivory markets in Tanzania. However, with the current efforts to change the narrative away from animals as property (Gacek & Jochelson, 2020), it is possible that the findings from this research may provide a foundational

platform for exploring the legal rights of elephants and their right to their tusks as their own property.

1.1.3 The Bush: PAs, National Parks and Game Reserves

There is no specific definition of the *bush,* although it can refer to large areas where wildlife may venture. This study refers to the bush as a general term encompassing all areas where the elephant may be found, including protected sites, game reserves and national parks. This is due to the Swahili *porini* referring to all wild areas, regardless of the legal status.

Similarly, PAs have an array of definitions depending on context and geographical specificity. Broadly defined PAs are legally recognised spaces managed to conserve species or natural landmarks (Dudley, 2013). The Swahili term *hifadhi* translates to park or reserve, meaning to preserve. Accordingly, this thesis uses the term PAs de facto to encompass all areas identified as legally protected but where the participant has not specified it as a game reserve or a national park.

National parks are areas marked (either with or without a physical boundary) to keep natural resources and attractions protected from non-natural disturbances. It is important to note that Tanzania's national park and game reserves are not physically fenced or contained (Packer et al., 2013; The Conversation, 2017). Access to the national park most often falls under state ownership (Dudley, 2013; Miles, 1995; Magalla, 2018; Mlozi & Pesämaa, 2019; Myres, 1972; Rhama et al., 2020). Where participants have mentioned national parks specifically by name, they have been shared with the reader. Of note is this research's primary focus is on Ruaha and Serengeti National Parks, although participants shared experiences across the majority of the 21 national parks in Tanzania (Malanga, 2019).

Game reserves are broadly defined as privately owned land that functions independently. It may be managed by governments, communities, or tourism operators to maintain wild animal populations. Some game reserves may be located directly on the outskirts of national parks or concessions within the parks. The latter may be subject to the regulations of national parks. Alternatively, privately owned *hunting blocks* for professional trophy hunting may be in place of game reserves (Bennett & Mulongoy, 2006). Consequently, game reserves or legal hunting blocks may provide buffer zones between the core protection of national parks and non-natural external impacts (Figure 1).

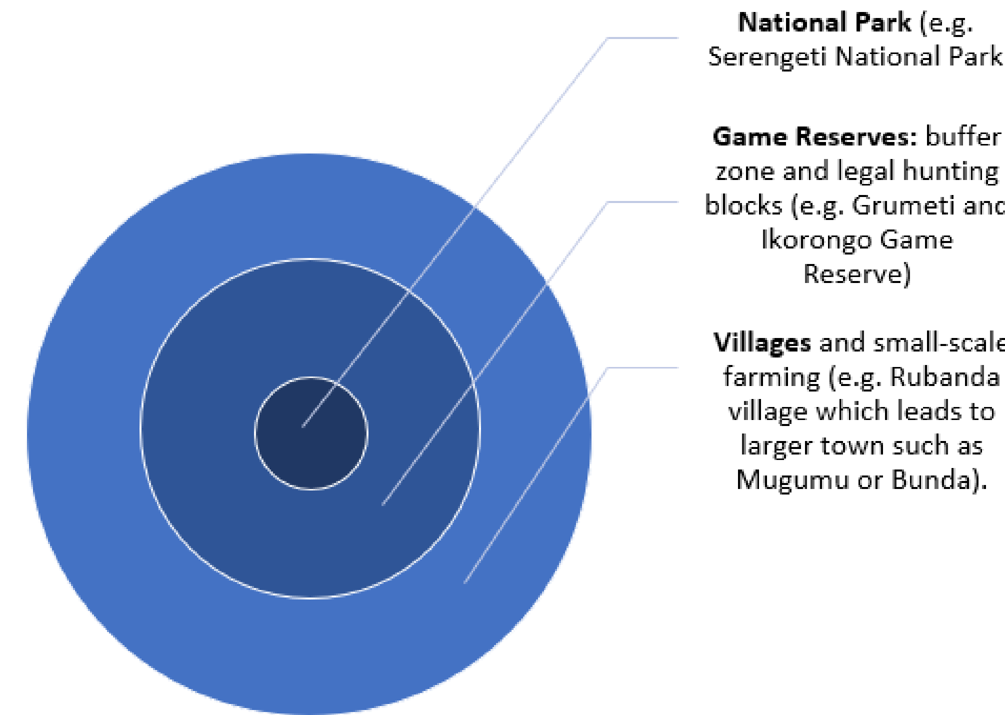

Figure 1: *A visual representation of national parks, buffer zones and villages*

For organisations and their mandates pertaining to this study, see Appendix 2.

1.2 Background

African Elephants, the *Loxodonta africana,* not to be confused with the African forest elephant (*Loxodonta cyclotis*), have been listed by the IUCN Red List *as Endangered* and *Critically Endangered,* respectively (IUCN, 2021). This is due to several decades of habitat loss coupled with what was previously regarded as hunting and is now seen as differentiated acts of poaching and professional hunting. Some may question why attention, money and effort are explicitly directed towards elephant conservation. Primarily, this is because the survival of elephant herds is vital to the local ecosystem maintenance, economics of tourism, and global cultural, symbolism, education, human imagination, and anthropomorphism (Sueur, Forin-Wiart & Pelé, 2020), rendering the herds a keystone species in all aspects with global significance (Bond, 1994; Caughley, 1976; Dublin, Sinclair & McGlade, 1990; IUCN, 2017; Naidoo et al., 2016; Western, 1989; World Wildlife Crime Report, 2020).

Two main groups perpetrate or facilitate poaching: firstly, the hunters who commit the actual act of poaching and, secondly, what might be called the fence and consumers who create the demand (Sutton, 1998). Huang, Wang, and Wei (2020) found that an estimated 45,410 kilograms of ivory products are trafficked from an estimated 182 countries to an average of 8.17 other countries, with the main hubs in Europe, East Asia, America and East and South Africa. The high demand for ivory coupled with the low finite rate of elephants among the

mammal species adds to their demise (Ngcobo et al., 2018; Wilson and Mittermeier, 2011; Vira, Ewing & Miller, 2014).

Research has tended to focus on end-consumer markets rather than source countries. This study aims to understand the ivory poachers and fences in source countries due to their direct effect on an increasingly threatened species and ecosystem. It is vital to investigate further what factors precisely drive these individuals to kill and trade in SIMs.

1.2.1 Tanzania and Illegal Ivory

Figure 2: *Wildlife PAs of Tanzania – Map created by Mike Shand and presented here with permission*

Tanzania was chosen for this study based on the researcher's familiarity with the country and access to networks to recruit a broad range of participants. This is in addition to Tanzania being recognised as an elephant ivory poaching hotspot (EIA, 2014; Huang, Wang & Wei, 2020; Wasser et al., 2015; WWF, 2016).

Eight countries border Tanzania (Burundi, Rwanda, Democratic Republic of Congo, Malawi, Mozambique, Uganda, Kenya, and Zambia), coupled with 1,400 kilometres of coastline (UNCTAD, 2005). Tanzania has an estimated area of 945,087 square kilometres (364,900 square miles) (Nations Encyclopaedia, 2021), of which an estimated 38 per cent (400,000

square kilometres/ 155,000 square miles) are terrestrial PAs (Kiffner et al., 2020; MNRT, ND; Trading Economics, 2021), with a total of 21 national parks as of 2019 (Malanga, 2019).

Following Tanzania's independence in 1961, colonial influences were maintained through a capitalist-driven economy until 1967 (Arusha Declaration, 1967; Bluwstein, 2018; Goldstein, 2005; Magalla, 2018; Nelson, Rugemeleza & Rodgers, 2007). The subsequent socialist economy meant that state ownership was prevalent, with far-reaching consequences on conservation and PAs (Kjekshus, 1977; Magalla, 2018; Neumann, 1999; Ngowi, 2009). Similarly, conservation efforts have continued since the colonial rule with German and British influences (Tanzania Ministry of Natural Resources and Tourism, 2017). However, some of the current colloquial and colonially embedded prerequisites may be ill-fitted for conservation (Gardner, 2012, 2017).

In more modern times, Tanzania has been identified as an illegal ivory hotspot accounting for 37 per cent of large ivory seizures between 2009 and 2011 (EIA, 2014; Huang, Wang & Wei, 2020; Wasser et al., 2015). Investigations on ivory DNA reveal that most of the ivory in illicit Asian markets is sourced from Tanzania (INTERPOL, 2014), which may explain the estimated near 60 per cent loss of elephant populations between 2009 and 2014 (Bennett, 2015; Mathiesen, 2015). It is estimated that poachers account for 60 to 90 per cent of elephant loss, subsequently listing poaching as a national security threat (EIA, 2020; Kassa, Costa & Camargo, 2019; Kingazi, 2006; Maguire & Haenlein, 2015; Nellemann et al., 2016; Zimmerman, 2003).

In recent efforts to prevent the demise of wildlife populations, Tanzania implemented the National Task Force-Anti Poaching (NTAP) (EIA, 2020; Namkwahe & Nyakeke, 2018). However, some question the militarisation of conservation and the divide between a colonially established crime (poaching), villain (poacher) and hero (conservationists and enforcement) (Duffy, 2014, 2017). While some agree with militarisation (McCann, 2017), others call for a deeper understanding of why poachers poach (Jain, 2017; UNWTO, 2014), the impact of inequality (Kassa, Costa & Camargo, 2019; IWGIA, 2018; Makoye, 2018), resistance to conservation efforts (Mariki, Svarstad & Benjaminsen, 2015; UNWTO, 2014) and who enables the poachers (Shapwanale, 2018; Wittig, 2016).

The decline in elephant populations has led to a global concern that ongoing slaughter rates could render wild elephants extinct, with consequential negative impacts on ecosystems and economies (Hilton-Tylor et al., 2009; IUCN, 2021; Platt, 2013; Rittel & Webber, 1973; Saint Louis University, 2019). However, policing and protection are difficult due to wildlife distribution, Tanzania’s porous borders and limited funds and resources (Kessler, 2006). Accordingly, this study focuses on exploring the validity of the MRA as a viable mechanism for elephant conservation. It relies on the MRA to shed light on Tanzania's previously poorly illuminated illicit ivory trade.

1.2.2 Green Criminology, MRA and SCP

The shift in perception to view wildlife trade as illicit markets (Moreto & Lemieux, 2015a; Schneider, 2008; van Uhm, 2016; Wyatt, 2009) falls under the interdisciplinary field of green criminology. This study can be further specified as environmental and conservation criminology that aims to apply traditional strategies by introducing the categories of *'crime'*, *'criminal'*, *'victim', 'prevention'* and *'punishment'* into deviant actions targeted against non-human species (Beirne & South, 2007; Gibbs et al., 2010; Gore, 2017; Lynch & Pires, 2019; Nurse, 2015a; Nurse & Wyatt, 2021; Potter, Nurse & Hall, 2016; Sollund, 2021; South & Beirne, 2006).

Environmental crimes (White, 2008) follow similar patterns to traditional criminology (Lynch & Stretesky, 2003). With the presence of *'crime'* (poaching), *'target'* (elephant and ivory) and *'offender'* (poacher, fence and consumer), green (Situ & Emmons, 2000), or environmental (White, 2008) crime could assist in the mitigation of poaching through traditional crime strategies such as the MRA. Schneider (2008) and Moreto and Lemieux (2015) outline the foreseeability of unproven yet plausible use of the MRA to govern the IWT.

The MRA (Sutton, 1998, 2010; Sutton et al., 2001) is embedded within Situational Crime Prevention (SCP), a preventative measure dependent on manipulating the real-world physical environment to prevent crime (Cornish & Clarke, 2003; Riley & Mayhew, 1980; Wortley, 1996). Both SCP and the MRA look to increase the efforts and risk of committing a crime while decreasing the rewards from completing a crime. However, the MRA does not explicitly focus solely on theft but also addresses the disruption of the chain of transactions on which the fences operate (Sutton, 1998).

Consequently, the MRA requires an understanding of the offending dynamics of supply, trade and consumption. Thereafter, the MRA evaluates effective existing crime prevention measures suited to the illicit market (Sutton, 1998, p. xii). While the MRA was initially developed to tackle SGMs in a Western context, this study explores the extent of the MRA's theoretical alignment across different jurisdictions and markets. Therefore, the telling question is: '*how fitting are Western urban theories for developing countries' national rural frameworks for wildlife?'*

This study focuses on local ivory poaching and illegal markets as, once the ivory has been transported to international markets, it is already too late for the wild elephant populations. There are clear policy implications if the pathways of Tanzanian ivory and the markets of USGs demonstrate overlapping features. Consequently, the MRA may be better suited to provide decolonised, locally tailored crime prevention approaches (Sutton, 1998).

This research was conducted before the COVID-19 pandemic (Anderson et al., 2020) which adversely impacted tourism and the global markets. Speculatively, ivory poachers and traders may have faced the same challenges concerning ivory exports from Tanzania, having consequential impacts on the local demand with limited supply in end-consumer countries.

Based on ongoing correspondence with this study's participants, my insights on the effect of COVID-19 on SIMs are briefly discussed in concluding the overall thesis.

1.3 Acknowledging the Gap and Situating this Study's Aims and Objectives

The central question that guides this study is: *can the MRA be used to understand and mitigate the illegal ivory markets in Tanzania?* The central curiosity necessitates a critical analysis of the primary differences between a) stolen goods and stolen ivory and; b) Western urban and developing rural environments.

Accordingly, the main aim of the thesis is to explore and compare the intersection(s) and difference(s) between SGMs and SIMs as expressed through elephant ivory poachers' and traders', park rangers' and other stakeholders' experiences and perceptions.

The specific aims and objectives of this study are:

1. To analyse historical and contemporary literature on illegal ivory markets.
2. To explore the motivations for the theft of and trade in illicit ivory.
3. To understand how elephant ivory is stolen, concealed, disguised, transported, and disposed of in the illicit markets.
4. To identify and seek to create a typology of Tanzanian SIMs.
5. To critically reflect on the theoretical underpinnings of the MRA as an approach to tackling elephant ivory *theft* in Tanzania.
6. Where possible, to use research findings to inform responses for a long-term MRA to disrupt local SIMs.
7. To contribute to green conservation criminology and sustainable development goal number 15, *Life on Land* (SDGs, ND).

Further aims and objectives defined following data collection:

1. To use the data collected to validate the speculations on the thieves' decision-making when examining suitable targets for theft.

This study will look at the core concepts of the MRA to locally tailor and propose market disruption for the theft and trade of stolen ivory in the context of Tanzania.

1.4 The Investigation: Methods, Considerations and Limitations

The methods by which this study aspires to answer the research aims and objectives include the following considerations:

1. Designing the interview schedule as guided and formulated using civilian components from the Extra Routine and Systematic Opportunistic Research (ERASOR) from the MRA (Sutton, 1998, 2010; Sutton, Schneider & Hetherington, 2001).

2. Contacting and conducting interviews with rangers employed by the Tanzania National Parks Authority (TANAPA).
3. To rely on the researcher's network to access interviews with various stakeholders in tourism, anti-poaching and legal sectors that may have first- or second-hand knowledge of SIMs.
4. To rely on the researcher's network to access interviews with potential elephant poachers.
5. To contact the Tanzanian Ministry of Home Affairs to access interviews with alleged elephant poachers.
6. To organise and analyse the data guided by the MRA on SGMs without forcefully subjecting the data to fit the preconceived concepts of the MRA.
7. To analyse the data using thematic analysis (Braun & Clarke, 2006) and the NVivo® software (Castleberry & Nolen, 2018).
8. To take into consideration the post-modernist (Haug, 1987; Lather, 2007; Walkerdine, 1990), feminist (Butler, 1992; Fonow & Cook, 1991; Gannon & Davies, 2007; Harding, 1986, 1991; Naffine, 1991, 1997; Smart, 1977; Sumner, 1990a) and decolonised (Agozino, 2004; Kitossa, 2012; Said, 1978; Smith, 1999) approaches when conducting the research.

The primary ethical consideration (by no means exhaustively presented here) pertains to anonymising all participants' identities, informing participants that discussions of planned criminal activity may be disclosed to authorities and that colleagues or associates should not be mentioned by name.

The boundaries and limitations of this research primarily pertain to the findings of this study being the initial written proposition instead of a real-world implementation of a long-term MRA that would have allowed for real-time monitoring and evaluation of the crime prevention responses presented by this study.

Additionally, data was collected from those willing to be interviewed, and it cannot be said with confidence to apply to Tanzania as a whole. Therefore, fine-tuning for regional variations in poaching practice remained beyond the scope of this thesis.

Uncertainty about the number of elephant poachers willing to be interviewed meant that it was not possible to undertake a pilot study. Instead, a mock pilot study would compensate to ensure that the Swahili interview schedules resonated with the English version with cultural deliberation.

1.5 A Conclusion to the Introduction and Chapter Breakdown

The introduction explains why the MRA may be suited to preventing SIMs given the ongoing demise of elephant populations, a keystone species integral to ecological and global significance. It also shares why the scope of this study is Tanzania due to the large elephant populations and its identification as an elephant poaching hotspot. Of importance to this

thesis is the introduction's acknowledgement of the definitions of the key terminology and the overarching question of the thesis: *can the MRA be used to understand and mitigate the illegal ivory markets in Tanzania?*

This research contributes to conservation criminology using the 67 face-to-face interviews conducted between 2018 and 2019 with law enforcement, potential and alleged poachers and various stakeholders in the tourism and legal sectors. Using the situational crime lens and the MRA framework, this study assesses *if* and *how* the MRA can disrupt SIMs, increase the risks and efforts, reduce the benefits and nudge ivory poachers and fences to mitigate their participation in Tanzanian SIMs. Additionally, this study addresses the implications for theory, practice, and policy for a longer-term MRA for illicit wildlife markets in Tanzania.

Chapter 1: Introduction – Presents background setting; aims and objectives; operational definitions; and concludes with a chapter breakdown of this thesis.

Chapter 2: Elephants and Ivory: From Evolution, Through the Ages to Commodification and Modernity – Explores and amasses literature on contemporary adaptations to poaching with implications for the MRA; historical markets of ivory and the decline in elephant populations during colonisation to understand the modern market dynamic; criminalisation of hunting to poaching; and contemporary SIMs and the existing efforts made to address these markets.

Chapter 3: Situational Crime Prevention – Presents the development of SCP and the three components of Rational Choice Perspective (RCP), Routine Activity Theory (RAT), and Crime Pattern Theory (CPT), aligning them to wildlife crime. The chapter concludes with a critique of SCP and how the MRA is situated within SCP.

Chapter 4: The Market Reduction Approach – Presents the literature on the MRA, including Extra Routine and Systematic Observation Research (ERASOR); typologies of the SGMs; typologies of consumers and distributors; and the chain of transactions. The chapter concludes with mitigative strategies for SGMs and the MRA's limitations.

Chapter 5: Methodology – Discusses the philosophical underpinnings and contemporary reconceptualisations of postmodernist, feminist, and decolonised approaches for this study before presenting the Thematic Analysis framework used for data analysis.

Chapter 6: Methods: Data Collection and Analysis – Details: research design; clearance for data collection; participant recruitment; data management; interview translations and transcribing; and the data analysis process.

Chapter 7: Participants of this Study and the Morality of Criminal Motivation – This chapter breaks away from the traditional presentation of the demographic data in the methods. It also explores the participants' understanding of SIMs and their perceptions of elephants, rangers, and fences before concluding on guilt neutralisation techniques and self-victimisation.

Chapter 8: Before the Chain of Transactions – Shares the data on the recruitment of ivory poachers and traders into SIMs, the breakdown of the distinct roles in poaching teams, the premeditated planning, and the supplies needed during ivory theft.

Chapter 9: Chain of Transactions Part 1 – In the Bush – Details entering, tracking, killing, extracting, concealing, and stashing stolen ivory for transportation out of PAs. The chapter concludes with the liminality between theft and trade of illegal ivory.

Chapter 10: Chain of Transactions Part 2 – Rural-to-urban – Details how the successfully stolen ivory is traded upon exit or concealed and stashed for later transportation. The chapter follows the data to the concealment and storage of ivory as it is readied for export by urban fences.

Chapter 11: Beyond the Chain of Transactions: Typologies and Target Selection – Presents the distributor and market typologies for SIMs and the selection of targets during ivory theft.

Chapter 12: MRA, Decolonisation and Sustainable Impact Investment: Reimagining Strategies to Prevent and Disrupt the Tanzanian SIMs – The presented data are investigated to recommend market reduction approaches for Tanzanian SIMs. The chapter concludes with a tabular presentation of 30 responses with considerations of crime displacement.

Chapter 13: Conclusion – Draws together and summarises the findings to determine the concluding response to the primary question, aims and objectives, and the perceived original contributions. The chapter concludes with future research considerations, policy recommendations, and speculations on the impact of COVID-19 on SIMs.

For Interview schedules, consent forms and worded protocol, see Appendix 1; for letters of access and challenges in gaining access, see Appendix 2; for researcher reflections and extra data from this study, see Appendix 3; for the field realities of ethical considerations and data quality see Appendix 4; for the business proposition built on this study's findings see Appendix 5.

Having introduced the thesis, the subsequent chapters encompass the literature review on the historical and contemporary ivory markets, SCP and the MRA to contextualise the research question.

Chapter 2: Elephants and Ivory: From Evolution, Through the Ages to Commodification and Modernity

> *"Neither the life of an individual nor the history of a society can be understood without understanding both."* (C. Wright Mills, 1959, in Thompson, 2017)

In assessing the applicability of the MRA to illegal ivory markets, it is necessary to take a long-term perspective to look beyond official accounts. This is done through a review of existing literature on the critical milestones in historical human-elephant relations. The review presented in this chapter proved helpful in informing the interview schedules (Appendix 1) and allowing the researcher to approach qualitative fieldwork with knowledge of elephant anatomy and historical ivory hunting and trading practices that still influence modern SIMs.

The chapter begins with the *Anatomy and Adaptability of Elephants* to discuss the physical and behavioural characteristics integral to this study with implications for the MRA. *Human-Elephant Interactions* explores the historical trade, value, demand, and markets of ivory, as called for by the MRA (Ch.4) and with implications for modern and future *modus operandi* (MO) of poaching. *Modernity and the after-effect of colonisation* is dedicated to understanding how hunting *became* the crime of poaching and the pinnacles of legal instruments directly impacting the current illegal ivory trade. Thereafter, the chapter discusses current markets and the existing efforts addressing ivory poaching and trading before concluding the chapter.

2.1 The Anatomy and Adaptability of Elephants

This section is not an exhaustive understanding of elephant anatomy or their more modern adaptations. Instead, it focuses on characteristics pertaining to this study.

Proboscideans, the order of mammals characterised by proboscis (trunk) (Eltringham, 1991; Göhlich, 1999), came into existence five million years after the dinosaur extinction, although the origin of the modern elephant species remains unidentified (Anniss, 2015; Bianchi et al., 2011; Gee, 2006; Illiger, 1811; Osborn, 1934; Shoshani, 1992, 1998; von Koenigswald, Martin & Pfretzschner, 1993; Wallis, 2009; Weitz, 1953). Modern elephants exist as three species: the African savannah elephant (*Loxodonta africana*), which is this study's focus; the African forest elephant (*Loxodonta cyclotis*); and the Asian elephant (*Elephas maximus*), whose current characteristics have ensured their genetic survival out of 352 identified proboscideans (Osborn, 1936, 1942).

Recent research now suggests that the African species are not genetically related, showcasing our ever-growing understanding of proboscideans in a situation of diminishing populations (Handwerk, 2010).

With the evolution in size, the elephants' skulls became larger and developed to include honeycomb air cells, also known as the dipole, believed to have evolved to protect the brain tissue (Shoshani, 1998). Literature suggests that the air pockets influence hunting techniques (Hunter, 1999, pp.124-125), with implications on current poaching (Appendix 3 & Ch.9).

Of importance to this study is the evolution of the musth gland that: secretes chemicals during heightened emotional experiences; communicates social dominance in males; and leads to aggression in males (Carrington, 1958; Shoshani & Tassy, 1996; Orwell, 1936). It is especially relevant to human-elephant conflict (HEC) and consequent retaliatory poaching (Ch.7).

By the mid to late 20th century, biologists took over field experiments from the hunters, with John Perry providing the first scientific dissection of an African elephant (Perry, 1953). This allowed for a more detailed understanding of elephant ivory and its characteristics that make it a favoured material over other ivories from animals (walrus, wild boar, narwhal, and hippopotamus) and plants (palm ivory or jarina seed (*Phytelephas*) (Chu et al., 2015).

What makes elephant ivory unique is the identifiable diamond-shaped striations known as crossing lines, engine turning, or Schreger patterns (Espinoza & Mann, 1993). The striations are acute in mammoth ivory and obtuse in modern species, allowing for forensic differentiation of genuine elephant ivory (Espinoza & Mann, 1993). The favoured design is challenging to engineer into ivory substitutes (Pedersen, 2015).

The size of elephant ivory not only leads to its demand, but its weight also impacts its price, poachers' choice of target and the proposed MRA (Ch.10, 11 & 12). Although large tusks were once relatively common (3.2 meters weighing 100 kilograms or more), now only a few survive (Burrard-Lucas & Tsavo Trust, ND; Eltringham, 1991; Moore, 2015; Omani & Zanzibar Virtual Museum; Section 2.1.3). The average size of tusks remains between 15 to 30 kilograms.

The anatomic makeup of elephant ivory is a non-cellular matric of cells where the density of the tubules (influenced by sex and location) determines the softness of the ivory (Elder, 1970), often used by carvers as a grading system (Avery, 1996; Ritchie, 1971). The pulp cavity has blood and nerve branches, while the tusk is embedded into the cranium, with only two-thirds protruding out. The tusks are sensitive to external pressure and cannot be extracted without harming the elephant (Eltringham, 1991; Ch.9).

Once treated, ivory takes to polish well, does not crack, deteriorates slowly, and its size allows grand cravings. These versatile characteristics make it the primary choice for endless uses, not central to human survival. On the other hand, elephants rely on the tusks for mating, fighting, digging for water, roots, and salt (Douglas-Hamilton & Douglas-Hamilton, 1975; Dublin, 1995; Moss, 1975; Sikes, 1971), felling or debarking trees (Vanaraj, 2001), protection and to recognise individuality (see also Bradford, 2014; Hubbard, 1928). The demise of elephant populations could result in incalculable harm based on their role as keystone herbivores (Bond, 1994) and the reliance of numerous animals on elephants and their ivory (Mutinda et al., 2014).

Environmental and anthropogenic changes, including poaching, accentuate elephant adaptation both behaviourally (Douglas-Hamilton, Krink & Vollrath, 2005; Foley, 2002; Ihwagi et al., 2018; Wittemyer et al., 2017) and physically (Archie & Chiyo, 2012; NAUTILUS, 2016) by the 'natural process of selection' (Darwin, 1859; Matthew, 1831). However, the long-term implications of modern adoptions are little understood (Foley, 2002), as addressed in the following sub-sections, with implications on poaching practices and the prevention strategies proposed through the MRA.

2.1.1 Tuskers without Tusks

Elephants are noticeably giving birth to more calves without tusks (Campbell-Station et al., 2021; NAUTILUS, 2016; Raubenheimer & Miniggio, 2016; Starkey, 2016; Steenkamp, Ferreira & Bester, 2007; Whitehouse, 2006). This is caused by the mating of surviving tuskless elephants, increasing the genetic probability of the tuskless alteration. However, the consequential long-term impact on the survival of tuskless populations and their dependents or ecosystems is little understood (Campbell-Station et al., 2021).

Anthropogenic-induced changes in tusk sizes are not a modern phenomenon. 19th-century records from South Africa show that increased hunting resulted in tuskless genotype abnormalities (Campbell-Station et al., 2021; Eltringham, 1991). Buyer's records show that the prime tusks weighing between 36 and 41 kilograms in the 1880s had fallen to an average of 25 kilograms by the late 1920s (Moore, 2015). Historical records show an awareness of the impact of mass hunting during the commodification of ivory (Section 2.3).

If all elephants were without tusks, the issue of poaching for ivory would be resolved, but there would be severe consequences on the survival of elephants, animals reliant on them and ecosystems (Barnes, 1983; Bates, Poole & Byrne, 2008; Bond, 1994; Dublin, 1983, 1995; Law, 1970; Mutinda et al., 2014; Steenkamp, Ferreira & Bester, 2007).

2.1.2 Night-time Forage and Movement

Ihwagi et al. (2018; see also Hood, 2017) found that elephants have switched from daytime to night-time forage and migration, a behaviour believed to be adopted in defence against poaching. Nocturnal activity was preferred in female groups as they passed through high-risk poaching zones. The herds have also been observed to increase their speed and tortuosity (i.e., straightness) of herd lines in danger zones and avoid human settlements in the daytime (Douglas-Hamilton, Krink & Vollrath, 2005; Fryxell et al., 2018; Graham et al., 2009; Ihwagi et al., 2019; Wittemyer et al., 2017). Each of these adaptations to poaching could impact anti-poaching efforts, poachers' *MO,* and any extended-term MRA to the problem. Although existing literature on poacher operating times is limited, this study's findings and correlations, if any, to elephant herd behaviours are discussed in Chapter 9.

2.1.3 Fission-Fusion Relations and Reproduction

Elephants live in kin-based fission-fusion societies where group membership fluctuates to accommodate threats or changes in resources (Wittemyer et al., 2005). As poachers and professional hunters target prominent tusks, they disrupt these relations (Gobush et al., 2008; Ishengoma et al., 2008; Poole, 1989, 1996), leaving the young without training on pregnancy, foraging, protection, and migration (McComb et al., 2001; Poole, 1989). Alternatively, they lead to matriarchs without tusks for protection, survival, or the ability to teach those with tusks (Dublin, 1983).

Targeting older males with large tusks skews reproductive success and genetic diversity as there is a smaller surviving tusked population of sexually active males (Foley, 2002; Gobush et al., 2009; Gobush et al., 2008; Ishengoma et al., 2007). Coupled with habitat loss, long gestation (22 months), and a smaller population leading to fewer encounters between active bulls and cows makes it challenging to sustain populations (Dublin, 1983; Foley, 2002).

Additionally, young males cannot learn to forage from those lost to poaching, leading to an early onset of musth (Cocksedge, 2017) with implications for HEC and retaliatory poaching (Ch.3 & 7). With less aggressive cows and more aggressive males, hunting and poaching practices could be altered with implications for the MRA.

Despite these known outcomes of poaching and hunting, many continue to demand ivory legally and illegally. To fully explore the potential of the MRA, it is vital to explore the historical and contemporary markets of ivory to see the *whole picture* before proposing mitigative strategies (Sutton, 1998).

2.2 Human-Elephant Interactions Through the Ages with Implications on Modern Demand

The literature presented here shows how perception, value and demand for ivory have shifted historically as hunting, poaching and selling ivory are entwined with the evolution of human-elephant relations and the anthropomorphism of elephants. The latter is discussed in Appendix 3. The section aims to answer the following questions critically: How are the modern demand for ivory and attitudes towards elephants connected with historical interactions? How have poaching styles evolved? What are the implications of this for the MRA?

2.2.1 Interactions Between the Ancestors of Elephants and Humans

The history of humans and elephants extends back to where archaeological evidence still edifies the relationship (Braun & Palombo, 2012). The relations have been conflicted and exploitative; how that has manifested has changed over time.

The Gomphotheres, ancestors to modern elephants (Eltringham, 1991), were contemporaries of early humans (Ben-Dor et al., 2011), who relied on them for safe navigation (McNeil et al., 2005), access to resources (plant, water, salts) (Haynes, 2001), meat (Mania et al., 1990; Shoshani, 1998; Yravedra et al., 2012), skin (Shoshani, 1998), fuel (Agam & Barkai, 2015; Boschian & Goren-Inbar et al., 1994; Sacca, 2014), and bones (Agam & Barkai, 2015; Yravedra et al., 2012). Although there is some dispute on consumption (Blasco & Fernandez Peris, 2012; Crader, 1983; Domínguez-Rodrigo et al., 2014; Smith, 2015; Villa et al., 2005). For additional evidence on archaic human and proboscidean relations, see Panera et al. (2013) for Europe, Yuan et al. (2012) for Asia and Dominguez-Rodrigo et al. (2014) for Africa.

Some modern humans follow similar practices, and the consumption of elephants relates to poaching payment and post-killing practices (Ch.8 & 9).

The nature of the relationship changed with the emergence of early pastoralism in the Palaeolithic period, which provided the Cro-Magnons with increased energy for hunting and reproduction (Tudge, 1998). This led to the fall of Neanderthals, predators, and large herbivores (e.g., proboscideans, bison, elephant birds) (Ben-Dor et al., 2011; Martin, 1984), and an increase in elephant crop raiding, possibly due to the improved taste and quality of cultivated crops. The *Gajasastra,* a 2000-year-old historical record of agriculture in Bihar, India, provides the oldest record of elephant crop raiding.

Modern poachers rely on farming as their primary income and may use this longstanding conflict to legitimise poaching (Ch.3 & 7), while other farmers may encourage and tolerate poaching. Consequently, modern HEC remains unavoidable and heightened through increased stress in elephant populations (Ahlering et al., 2010; Chiyo et al., 2011).

On the other hand, there are only a few early records of hunting explicitly for ivory (Panera et al., 2013), although it was an ancient medium for artistic expression (Braun & Palombo, 2012; Carrington, 1958; Don's Map, ND; Topsel, 1658). Examples date back 35,000 years (Braun & Palombo, 2012; Conard, 2003) and 28,000 years (Walker, 2009) despite the labour needed to obtain and manage large tusks and limited access to rudimentary tools.

2.2.2 Demand for Elephants and Ivory Through the Ages

Between the fourth and sixth centuries, there was an increase in the use of ivory for religious artefacts, conceivably connected to the Western ideals of light-skinned beauty and religious purity (Scarborough, 1998). In Christianity, ivory figurines and diptychs were introduced by crusaders, possibly in preference to wood and stone (Ayers & Kerr, 2002; Barnet, 1997; Kinney & Cutler, 1994; Kunz, 1916; Pluskowski, 2004). The pattern in other major religions was similar, including, among other religions: Islam (Bowersock, 2013; Clarence-Smith, 2004; Pedersen, 2015); Hinduism (Chaudhuri et al., 2018; Gupta, Thangaraj & Singh, 2011; Monier-Williams, 1875; Murray, 1976); and Buddhism (Mudgal & Joshi, 2016).

This demand continues in modern times (National Geographic & GlobeScan, 2015; see also Chadha & Husband, 2006; Financial Times, 2009; Lannes, 2019; Strauss, 2015). As early as 2013, the Sri Lankan government faced backlash as it planned to gift 359 seized tusks to a temple (Hance, 2013). DNA samples suggest the tusks were sourced from Tanzania (Bastians & Anand, 2016).

The ivory trade has developed over centuries, and changing the modern attitudes underlying it is likely to take equally as many generations (Greenfield & Veríssimo, 2018; Veríssimo, ‘t Sas-Rolfes & Glikman, 2020; Wang et al., 2020a; Wang, Gong & Mao, 2018; Xie, 2020; Zhang & Yin, 2014; Zhou et al., 2018).

Unsurprisingly, the scarcity and beauty of ivory artefacts meant that they came to signify social status, shifting the demand from the divine to one of elitism (St. Aubyn, 1987). In Egypt (± 3500 – 500 BCE), elephants and ivory were more valuable than gold (Bishop, 1921; Carrington, 1958; Naylor, 2004; Van Uhm, 2016; see also Erman & Tirard, 1971; Houlihan, 1996; Mason, 1999; Pedersen, 2015; Wicker, 1998), and Roman elites acquired elephants for ivory art (Bostock & Riley, 1855; Kinney, 1994; Maskell, 1905; Stens, 1955; VAM, ND), menageries (Bedini, 1997), delicacies (Brown, 2015), circuses, gladiator events (Wiedemann, 2002) and war (Gabriel, 2011; Hughes, 2003). Consequently, philosopher Themistius records a noticeable decline in African elephant populations (Hughes, 2003).

Following the fall of the Roman empire, the Vikings monopolised the trade between Europe and the Middle East, gaining access to East African Ivory (Barnet, 1997; Chaiklin, 2010; Pluskowski, 2004).

In Asia, ancient scripts speculate Varanasi, India, as the main ivory trade centre with the earliest record of elephant hunting for ivory (Pletcher, 2011; see also D’Ancona, 1950; Pedersen, 2015; Pollard, 2013; St. Aubyn, 1987). Ancient Chinese scripts of the sixth century BCE record the decline of elephants caused by habitat destruction and ivory demand (Elvin, 2004; Pedersen, 2015; see also Bishop, 1921; Gabriel, 1997). By 206 BCE, China was one of the largest traders in worked ivory, using its established silk routes for export, leading to the modern inclusion of ivory artisanship in the Intangible Cultural Heritage Register (Levin, 2013; see also National Geographic, 2013; Physorg, 2019).

Japan’s involvement came later due to the stringent trade restrictions and high ivory prices (Barbanson, 1961; Martin, 1985; Pedersen, 2015). However, by the 1970s, Japan was one of the world’s largest ivory consumers, with two-thirds of ivory sourced from Africa, a demand that has persisted until recent times (Nishihara, 2003).

The pertinent question remains: *Has human culture progressed with elephant evolution and an engrained yearning for ivory? Furthermore, does that status still drive modern demand and value?*

2.2.3 East Africa's Elephants Before Colonisation

There is little information about those supplying ivory from East Africa in the pre-colonial period. Most of what is known is contained in Alpers's (1975) compilation of historical diaries and correspondences.

As with early humans, elephant parts were used for a range of purposes (Section 2.2.1; see Agam & Barkai, 2015; Crader, 1983; Carrington, 1958; Lacovara, 2017; Vatican, 2021), including access to water and to draw away tsetse flies (Sheriff, 1987). As a result, tribes had established hunting practices long before colonisation, and HEC was common (Hoare & Du Toit, 1999; Tudge, 1998). With colonisation, many tribes would eventually benefit from trading ivory for cloth, salt, weaponry, and metal (Hoare, 1999).

The Makua-Lomwe, Kimbu and Cokwe of East Africa had secret societies focused on elephant hunting for sustenance (Alpers, 1975). This level of organisation enabled them to meet the pre-colonisation ivory demand by Arab traders (Alpers, 1975). The Yao, also heavily involved in the international ivory trade pre-colonisation, ritualised hunting by consulting the chiefdom and ancestors and with firearms adorned with protections (Alpers, 1975; Davidson, 1961; Petraitis, ND). If hunting was conducted far from the village, the main hunter had the first shot, and all ivory was his until the coast, where it was traded for calico, which was later proportioned amongst the hunting group (Alpers, 1975). This research found a similar priority for the lead shooter, and contemporary protections and local medicines are still purchased from the elders (Ch.8 & 9).

Similarly, elephant hunting practices, including severing tendons using an axe, established by the Chewa tribe of the Maravi clan, are still used by modern poachers, albeit nowadays with guns (Ch9 & Appendix 3). Of other correspondence to modern practices is the role of the heads of villages who despatched caravans for procuring ivory and undertook rituals to ensure hunter's safety and the fidelity of their wives, a role that village chiefs still play today (Ch.8 & Appendix 3).

The Yao's economic influence over other tribes spread, increasing their wealth and status (Alpers, 1975), an elitism generated through trading ivory from a hunter, or perhaps a thief, to the buyer, similar to modern SIMs (Ch.9 & 10). By the 17th century, overland routes for ivory transport had been established (Alpers, 1975; Pakenham, 1992; Woodhouse, 1976), and exchanges in ivory artisanship took place between continents (St. Clair, 2003). However, ivory was simply seen as a tradeable commodity in East Africa, providing those possessing it with higher bartering powers, as it is still seen today.

2.2.4 The Colonisation of East Africa and the Commodification of Ivory

In East Africa, the introduction of colonial powers, entangled with tribal chiefs, Arab and Swahili traders and hunters enhanced the ivory trade and established the trade in enslaved

humans. This formed the foundations of modern poaching and SIMs (Alpers, 1975; Chaudhuri et al., 2018; Davidson, 1961; Pakenham, 1992; Sheriff, 1987; Whatley, 2008; White, 1971).

Of note is the role of the Portuguese in collapsing the established Tanzanian ivory centre in Kilwa Kisiwani (de Flamingh, 2020; Pakenham, 1992). The Maravi, of even more military strength than the established Yao and Makua-Lomwe, did, in part, take over and defend the ivory trade against the Portuguese (Alpers, 1975), which lasted until the increased demand for enslaved labour by French colonies (Davidson, 1961).

At this juncture, colonisers switched to enslaved ivory porters to limit tsetse flies drawn to ivory-carrying animals and to enhance their profits, where both enslaved porters and ivory could be sold at the coast (Sheriff, 1987). However, the role of an ivory porter became so crucial that an individual was allowed the status of a free wage worker, with the Wanyamwezi specialising as ivory carriers (Moore, 2015; Rockel, 2000). The Wanyamwezi record one of the earliest recorded thefts of raw ivory (Ash, 1894 as found in Rockel, 2000 p.181):

> *"About midday a number of Wanyamwezi travellers came into our camp…they had been attacked by a number of predatory Wahehe...who had killed their leader and carried off two tusks of ivory…they had been taking to the coast."*

Ivory porters continue to play a crucial role in modern poaching expeditions (Ch.8 & 9), feasibly still influenced by tsetse flies.

Zanzibar was the central hub where notorious traders filled tusk cavities with lead and soaked them in water to increase their weight (AfricanGlobe, 2014; Laing, 2017; Moore, 2015; Waller, 1875). This study found rare occurrences of similar and modern sale trickery (Ch.9 & 10), while Zanzibar continues to play an integral role in the IWT (EIA, 2014; Millar, 2020).

Locally, ivory was valued as an exchangeable good for Indian cloth, traded with Muslim and Banyan (Hindus) Indians, leading to the 19th-century Portuguese restriction on all Indian traders (Alpers, 1975; Machado, 2005; Pakenham, 1992). Although this narrative may have changed, ivory remains a tradeable commodity, now illegally sold to established businesspeople for illegal export, with little value in Tanzanian society (Ch.7 & 13).

As the supply of elephants diminished, caravans ventured deeper into the African interior, and the tribes and elephants migrated farther inland to avoid raiding parties (Alpers, 1975). By the 19th century, in colonial East Africa, ivory was valued higher than the life of a man, woman, or child, repulsively commodified as "black ivory" (Beachey, 1967).

With a ten-fold price increase of ivory between the 1780s and 1830s, ivory was commercialised and contributed to the British-American industrial revolution (Beachey, 1967; Kramer et al., 2017; Kunz, 1916; May, 2008), primarily through lathes modified first for ivory, then metal (Borisov & Mokeeva, ND; Connors, 1990; Mokeeva, ND; Strano et al., 2009).

Such developments made ivory artefacts more affordable (Conniff, 1987; Malcarne, 2001; Malcarne Deforest & Stoms, 2002). Mass production included billiard balls (Billiard & Snooker Heritage Collection, ND [a]; ND [b]; Hendricks, 1974; Reynolds, 1890; Shamos, 1999), piano keys (Conniff, 1987), musical instruments (Cuillinn, ND; Mair, 2006), combs (St. Aubyn, 1987), scientific instruments (Gouk, 1988) and medical uses (Khindria, Mittal & Sukhija, 2009; Major, 2015; Szostakowski, Jagiello & Skinner, 2017).

Kenya, Uganda, and Tanganyika (now Tanzania) increased their exports from 100 tonnes in 1925 to 600 tonnes by 1960 (Eltringham, 1991; Barbier et al., 1990). Trade eventually began to decline due to the invention of alternatives – Bakelite and, subsequently, plastics.

2.3 Modernity: The Criminalisation of Ivory

It was not until the 1920s that the decline of elephant populations was recognised, and even later, in the 1970s, when the effect of hunting came to the forefront of political and legislative attention (Beard, 1998; Milner-Gulland & Beddington, 1993; Pandey, 2015). Tanzania experienced a loss of 236,300 elephants from 1979 to 1989, with only 80,000 remaining in 1989 (Glennon, 1990; Lemieux & Clarke, 2009; Meredith, 2003; Western, 1989). It is easy to glance over these numbers, but the devastation of loss is apparent when one imagines the scale of elephant genocide (see also Chase et al., 2016; CITES CoP15, 2010; CITES CoP18, 2019; Foley & Faust, 2010; Foran, 1958; Gavron, 1993; Parker & Graham, 1989; Smit et al., 2017; Thouless et al., 2016; Wittemyer, 2018; Wittemyer et al., 2014; World Wildlife Crime Report, 2020).

In response, legal instruments were developed, and hunting was criminalised for some. The shift from hunter to poacher was socially constructed, possibly for the self-perpetuation of colonial powers (Christie, 2004; Hulsman, 1986; Kirby, 1933; Manning, 1993) to meet the 18th and early 19th centuries European demand for sports hunting (Hariohay et al., 2018; O'Toole, 2011; Shales, 2021; Steinhart, 2006).

Professional hunters and services replaced lone ivory hunters, with safaris sometimes lasting many months (Davidson, 1961; Hariohay et al., 2018; Whatley, 2008). These were well-organised with supporting staff, including guides, trackers, porters, chefs, and waiters. This is similar to the time spent on poaching expeditions and their reliance on supporting staff, as found by this study with implications for the MRA (Ch.9).

As elephant populations declined, sporting opportunities and its associated income reduced (Dick, 2021; MacKenzie, 1997; Steinhart, 1989), resulting in avid hunters advocating for conservation, such as Fredrick Selous (1851-1917) (Brown, 2002; Kyando, 2014; Kyando, Ikanda & Røskaft, 2017), and in legal fees, fines, and quotas. This placed unattainable financial burdens on local people, leading to the criminalisation of their actions, labelled as poaching (Servant, 2020; Steinhart, 1989).

Wildlife conservation in Africa was debated internationally in the imperial metropole of 1900 (Adams & Mulligan, 2003). Encouraged by the comparison of elephant decline to that of the American bison (Frost & Hall, 2009; Gißibl, 2006, 2016; Myers, 1972; Nash, 1970), the German colonial powers held sway (Steinhart, 2006) and declared wildlife as German-Tanzanian imperial game in PAs. There remains a debate against the implementation of PAs, with claims of eco-imperialism and unnatural management (Guha, 2006; Neumann, 1998).

Consequently, such restrictions, coupled with the oppression of African rulers wanting to take back control, led to escalating civil unrest, including, inter alia, the Maji-Maji Movement (1905-1907) in German East Africa (Agozino, 2004, 2021; Iliffe, 1967; Pakenham, 1992; Petraitis, ND; Yigitkurt, 2015).

Such developments led to the exclusion and criminalisation of local people and their traditional practices, where spears, arrows, snares, and pits were defined as animal cruelty, and guns were encouraged (Ranger, 1989; Steinhart, 2006). Consequently, there remains a historically embedded but contemporary resentment amongst most local societies towards the exclusionary nature of PAs (Ch.7).

Wildlife restrictions were initially introduced in Moshi Tanzania in 1890, where hunting without a license was banned (Gißibl, 2006, 2016), and in 1896, hunting of ivory below three kilograms was restricted (Gißibl, 2006). A restriction later incorporated in the London Convention during the emergence of international environmental law (Weiland & Lynton, 1996; Bodansky, 1995).

International conventions continued the process of redefining some forms of hunting as poaching. Seven European nations and African colonies convened for the *Convention for the Preservation of Wild Animals, Birds and Fish in Africa*, also known as The London Convention of 1900 (Jepson & Whittaker, 2002). At the time, London was annually importing and storing an estimated 500 tonnes of raw ivory (1850-1910) (Walker, 2009).

The convention outlined five concerns for the income-generating big game, defining many other animal species as vermin (Bonner, 1993; Cioc, 2009; Convention for the Preservation of Wild Animals, Birds and Fish in Africa, 19 May 1900; Garland, 2008). The treaty was never fully enforced, its provisions and penalties being vaguely defined. The African elephants were merely protected by confiscation of tusks below five kilograms and a fine for hunting young calves.

In 1930, influenced by Western plantation owners, the convention debated land use, leading to the introduction of the Ngorongoro Conservation Area in Tanzania (Cioc, 2009; Gißibl, 2016). This, and the subsequent conservation areas, led to the further exclusion and criminalisation of local people and their traditional practices. At the same time, the convention differentiated between local hunting practices (spears, arrows, snares, and pits – defined as animal cruelty) and the use of guns – which was considered more acceptable (Ranger, 1989; Steinhart, 2006). Consequently, there remains a historically embedded but

contemporary resentment amongst some local people towards the exclusionary nature of PAs. (Dick, 2021; Ch.7).

The debates for and against marked land for conservation are beyond this thesis's scope, as is the discussion on professional hunting and its implications for conservation (Dickson, Hutton & Adams, 2009). What is understood is that the concept of 'poaching' became relevant to elephants in the 19th century, enhanced by the establishment of PAs, licences, and fees, primarily for the benefit of colonisers and Western hunters. It seems clear that from the onset of conservation, economic rather than moral considerations have prevailed (Stengers & Vansina, 1985).

In the contemporary context, this thesis agrees with the criminalisation of elephant poaching due to diminishing populations and continuing demand for ivory. However, the distinctions between the actions of wealthy hunters and local populations must be rectified so that both can equally afford to hunt, or both are criminalised.

2.3.1 Pinnacles in Modern Conventions

The view that wildlife was a legitimate source of income was overtaken by the late 20th century by the sense that an ecological crisis was taking place, with a fear that species would become extinct (Encyclopaedia Britannica, 2020; Hutton & Dickson, 2000; Jenkins, 2000; Nadelmann, 1990; Wu & Wen, 2015). The United Nations (UN) World Summit in Rio de Janeiro (1992) paved the way for multilateral agreements and increased efforts in conservation, albeit with some colonial and self-perpetuating rhetoric still present (Bonner, 1993, 2009; Braczkowski et al., 2021; Cioc, 2009; Cousins, Evans & Sadler, 2009; Ducarme, Luque & Courchamp, 2013; Garland, 2008; Nicholls, 2004; Karlsson, 2002).

One of the most significant impacts on elephants has been the Convention on International Trade in Endangered Species of Wild Fauna, and Flora (CITES), which came into force in 1975 (Duffy, 2013; Hutton & Dickson, 2000; Jenkins, 2000; 't Sas-Rolfes, 2000; Wyatt, 2021). Initially, African elephants were not considered until instigation from Ghana in 1976 (CITES, ND [a]; Humane Society International, ND; Korwin et al., 2017; Linder, 2016; 't Sas-Rolfes, 2000; WWF, 2015). In 1989-1990, elephants were moved to Appendix I for species threatened with extinction and traded only within exceptional circumstances accompanied by import and export permits (CITES, ND [b]; CITES, 2016; 't Sas-Rolfes, 2000).

The latter resulted in an ivory ban in 1989 (Lemieux and Clarke, 2009; Somerville, 2016), which may have contributed to an increase in Tanzanian elephant populations in 2006 (CITES, 2010; Shoshani, 1992; Somerville, 2016; Walker, 2009). However, 2009 saw a resurgence in poaching, likely to have been fuelled by legal sales of stockpile ivory (EIA, 2014; Somerville, 2016; Vandergrift, 2013; Walker, 2009; see also Collins, Cox & Pamment, 2017; Bennett, 2014; KEO Films (a), 2016; (b), 2016; Moyle, 2014; South & Wyatt, 2011; Wasser et al., 2010). As a result, many countries have destroyed national ivory stockpiles, although the question

remains of what should be done with stockpiled ivory in a post-ban environment (Braczkowski et al., 2018; Walker, 2009; Welch, 2015; Wolfgang, 2017; Zane, 2016).

CITES established programmes such as *Monitoring the Illegal Killing of Elephants* (MIKE) (Chase et al., 2016; CITES, ND [d]) that collects carcass data to understand the Proportion of Illegally Killed Elephants (PIKE) (CITES, CoP18, 2019). However, the PIKE data are questioned (World Wildlife Crime Report, 2020), while some critically examine the overall impact of MIKE (EIA, 2000). Moreover, CITES lacks an enforcement agency, assigning sovereign nations responsibility (Nurse, 2015b; Reeve, 2014).) As a result, CITES has had limited impact (Hutton & Dickson, 2000) and, in some respects, has made it harder to police illicit trade (Nurse, 2015b; Vandergrift, 2013; Wyatt, 2013, 2021). See CITES, ND [c]; NIAPs, 2017 for Tanzania and CITES.

Permits and restrictions are well established, but unsurprisingly, those involved in the IWT have developed ways of circumventing them (Austin, 2019; Collins, Cox & Pamment, 2017; Gavron, 1993; Moyle, 2014). Copious quantities of illegal ivory continue to be laundered into legal circulation while policing pre-ban legal and post-ban illegal ivory remains challenging (Bennett, 2014). The challenges of differentiating ivories further hinder this (Kufnerová et al., 2021; Winters et al., 2018). See also Burragato et al., 1998; Farah & Boyce, 2015, 2019; Martin & Martin, 2010; Toropov, 2021; Walker, 2009.

The impact of CITES on the ivory trade shapes the illicit markets with ramifications for this research—however, many other legal instruments also pertain to elephants and ivory. More recently, the Convention of Biological Diversity (CBD) has, since 1993 (Nurse, 2015b; United Nations, 1992), required members to present reports, including the National Biodiversity Strategy and Action Plan (NBSAP) (Nurse, 2015b). Tanzania's NBSAP for 2015-2020 highlights the demise of elephant populations across all national parks - a 60 per cent reduction in overall population from 109,051 (±5,899 SE) in 2009 to 43,521 (±3,078 SE) in 2014 (CBD, ND; NBSAP, 201; TAWIRI, 2010).

In 1992, eight African countries signed the Lusaka Agreement on Co-operative Enforcement Operations Directed at Illegal Trade in Wild Fauna and Floras. This recognised the natural cross-border migration of animals and transnational illegal trade routes (EUROPOL, ND; Lusaka Agreement, 1994; ND). Other legal instruments include the Arusha Declaration of 2014 (ICCF, 2015; Magalla, 2018), the London Declaration of 2014 (UK Department for Environment, Food and Rural Affairs, 2015) and the international conference on illegal exploitation and illicit trade in wild flora and fauna in Africa, Brazzaville, 2015 (Traffic, 2015) (see also Kideghesho, 2016; Linder, 2016).

For additional policy and enforcement efforts at an international level, see Humphrey, 2020; Kasane Conference on The Illegal Wildlife Trade, 2015; Lemaître & Hervé-Fournereau, 2020; Mbzibain & Mohamed, 2020; Rodriguez Valero, 2015; Smith et al., 2015; Wang et al., 2020b; Wyler & Sheikh, 2008; Zimmerman, 2003.

2.4 Contemporary Illicit Ivory Markets: An Overview of the Problem

> *"…the conservation of nature is of undiminished importance in post-colonial societies, yet the legacy of colonial thinking endures."* (Adams & Mulligan, 2003)

The international confluence between legal and illegal ivory created through the ban by CITES provides the facade required by illicit operators (see also Bulte, Damania & Van Kooten, 2010; Chen, 2015; Rivalan et al., 2007). This coupled with the difficulty in differentiating legal mammoth ivory from illegal elephant ivory (IFAW, 2006), legislative loopholes (Mallett, 2015; Mbzibain and Ongolo, 2019; Vanderheiden & Mayer, 2020; Weisberger, 2017) and one-off stockpile sales (Bennett, 2014; Grammaticas, 2014; Hsiang & Sekar, 2016; Schmidberger et al., 2018; Xiao, 2018).

Due to the limited impact of international efforts (Blundell & Mascia, 2005), it is necessary to understand and address the dynamics in ivory's source and end-consumer countries (Barrett & White, 2017), as discussed in this sub-section.

2.4.1 Supply, Demand and of Transnational Traders Poached Ivory

An ivory ban in Asian markets has led to a demand for smaller trinkets (Nguyen, Indenbaum & Willemsen, 2018; Krishnasamy, Milliken & Savini, 2016; State Council of China, 2016; The White House, Office of the Press Secretary, 2016), as well as a degree of market displacement (Meijer et al., 2018; World Wildlife Crime Report, 2020; Ch.3). Nonetheless, the annual trade is estimated between 100 and 170 metric tonnes (MTs) of illegal ivory, (World Wildlife Crime Report, 2020; see also Hunter, Martin & Milliken, 2004), primarily sourced from the Tanzanian-Mozambique population (Kideghesho, 2016; Nelson, 2020; Wasser et al., 2015).

A recent development in supply-and-demand is online sales on the dark web (Alfino & Roberts, 2018; Harrison, Roberts & Hernandez-Castro, 2016; INTERPOL, 2013a, 2017; Meijer et al., 2018; Nalluri et al., 2021; Roberts & Hernandez-Castro, 2017; Worth, 2017; Wright, 2019; Yeo, McCrea & Roberts, 2017; Zhao et al., 2017), with developing countries having limited online enforcement (Ghosh & Turrini, 2010, p.312).

Globally, middle-class prosperity has increased the demand for ivory (Barton, Chen & Jin, 2013; Deloitte, 2018; Newton, 2018; Kharas & Hamel, 2018). Data from transit countries and traders (Underwood, Burn & Milliken, 2013) indicate that four criminal groups controlled the ivory supply (The World Wildlife Crime Report, 2020; see also Wasser et al., 2018). Excluding the unknown nationalities, it is estimated that the Chinese (22 per cent), Zimbabwean, and Nigerian (8 per cent each) were the highest sellers. In comparison, Tanzanians accounted for 6 per cent (World Wildlife Crime Report, 2020).

2.4.2 Illicit Ivory in Tanzania

19th-century colonial records (Beachey, 1967; Håkansson, 1998) provide details of regional variation in ivory trading (Gossmann, 2009; Price, 2017). However, the literature on supply markets is sparse, as is the focus on rural and wildlife crimes (Barclay & Donnermeyer, 2011; Donnermeyer & Barclay, 2005; Eliason, 1999; Weisheit & Donnermeyer, 2000), and the difficulties of policing such environments (Dinerstein et al., 2007; Mawby & Yarwood, 2011). Additionally, studies on rural crimes in non-Western countries are further limited (Grote & Neubacher, 2016), conceivably due to the perceived challenges of logistics and accessing data (Marenin, 1997), as experienced by this study (Ch.6).

Consideration of markets in source countries generally takes a continent-wide approach. The cost of ivory in Africa is estimated at USD 150 per kilogram, a tenth of the price in Beijing (USD 2,025) (Davies & Holmes, 2016; see also Bergstrom, 1990; Sosnowski et al., 2019). Although there are indications that prices have fallen more recently (Vigne & Martin, 2017; Xiao, 2018).

The price paid to poachers in Kenya and Tanzania is thought to have fallen from USD 95 per kilogram in 2014, USD 78.5 per kilogram in 2016 and USD 40 per kilogram in 2018 (World Wildlife Crime Report, 2020), which may have led to stockpiling by local operators (Milliken et al., 2018). However, understanding the price of ivory is complicated depending on where in the chain the data are collected; which country; size, weight and damage of tusks; and inflated prices for novice buyers, for example (Johnson, 2013; Stiles, Martin & Vigne, 2011; see also Champagne-Buckley, 2019; Cohen, 1993a; Goode & Ben-Yehuda, 1994; Thompson, 1998; Vasterman, 2005). This research faced similar challenges (Ch.10).

2.4.3 Motives for Poaching in Tanzania

Theories about poachers' motivation developed in Western studies (Bowe, 1994; Brymer, 1991; Curcione, 1992; Forsyth, 1993; Forsyth & Marckese, 1993a, 1993b; Green, 1990; Nurse, 2011, 2017b, 2020; Scialfa, 1992; Stoll, 1975) may have limited applicability to Tanzanian poachers. Nevertheless, Muth and Bowe's (1998) ten self-explanatory categories provide a starting point:

__Table 1:__ Motives and careers in ivory poaching

Muth and Bowe (1998)	Speculations on ivory theft
1. Commercial gain	Applicable (Holmern et al., 2002; Kideghesho & Mtoni, 2008; Kideghesho, Røskaft & Kaltenborn, 2007; Lombard, 2016; Runyoro & Kideghesho, 2010)
2. Household consumption	Not applicable: Ivory is stolen to sell rather than for personal use (Ch.2)
3. Recreational satisfaction	Not applicable: Elephants are hunted for ivory to sell rather than for recreational reasons.
4. Trophy poaching (IOA, 2013; Nuwer, 2017)	Not applicable: Ivory is extracted to sell forward rather than personal trophy collection (Ch.2)
5. Thrill killing	Unclear
6. Protection of own self and or property	Applicable: Due to HEC (Moreto, 2019)
7. Poaching as an act of protest	Applicable: Due to land privatisation and exclusion from PAs (Hübschle, 2017; Kideghesho & Mtoni, 2008; Mmahi & Usman, 2020); inequality and corruption (Hauenstein et al., 2019; Kideghesho & Msuya, 2012; Liew et al., 2021)
8. Poaching as a traditional right	Applicable: Hunting skills taught through generations (Segedin, 2016)
9. Disagreement with specific regulations	Applicable: (Hübschle, 2017; Mmahi & Usman, 2020).
10. Gamesmanship: *"… poachers become the hunted in addition to being the hunter…."* p.20.	Unclear

Most studies on Tanzanian IWT propose poverty as the primary motivator (Keane et al., 2019; Knapp, 2007, 2009, 2012; Knapp, Peace & Bechtel, 2017; Kideghesho, 2016; Kideghesho et al., 2005; Loibooki et al., 2002; McDowell, 2012; Mitekaro & Poche, 2017; Muganda, Sahli & Smith, 2010; Office of the Prime Minister, 2020; Slocum & Backman, 2011; United Republic of Tanzania, 1999, 2001). Others suggest the existence of illegal markets, increased e-commerce and the rising wealth and demand in end-market populations (Hall, 2019; Kideghesho, 2016; Schneider, 2005; Stiles, 2014).

Of recent consideration is an increase in refugee populations (Duffy et al., 2015; Jambiya, Milledge & Mtango, 2007; Kideghesho, 2016; Whitaker, 2002) and the influence of insurgents or terrorism (Williams & Brooks, 1999; Cardamone, 2012; Kalron, 2012; Saah, 2012; Schiffman, 2014; Somaville, 2014; Nkwame, 2014; Kenyatta, 2013; EIA, 2014; Christy, 2015; Hammer, 2016; Haenlein, Maguire & Somerville, 2016; Maguire & Haenlein, 2015; Medina, 2013; Ng'andu, 2020; Haass, 2020). Although others argue that the evidence to prove the

latter is negligible (Questions for Foreign and Commonwealth Office, 2017; Reid, 2017; Moritz et al., 2017; Wittig, 2018).

2.4.4 Existing Efforts for Tackling SIMs

There are many challenges in tackling SIMs with some overlaps to SGMs, such as monitoring illegal online sales (Demeau, Vargas-Monroy & Jeffery, 2019; Gao & Clark, 2014; Holt, 2013; INTERPOL, 2013b; Lavorgna, 2014; Xiao & Wang, 2015), and others that do not, such as property marking (Armitage & Pease, 2008), opposed to DNA forensics and radiocarbon dating needed for ivory (EIA, 2020; Esmail et al., 2020; Kufnerová et al., 2021; Wasser et al., 2008).

There have been numerous international efforts to address SIMs, including: awareness campaigns (Greenfield & Veríssimo, 2018; Wang, Gong & Mao, 2018; Xie, 2020; Zhang & Yin, 2014; Zhou et al., 2018); policing online sales (Cox & Collins, 2020; Nishino & Kitade, 2020; Sosnowski, 2019; Sung & Fong, 2018; Venturini & Roberts, 2020; Xu, Cai & Mackey, 2020); DNA forensics and genetics (Bücker, 2017; Carrothers et al., 2021; Ewart et al., 2020; Gupta, Thangaraj & Singh; Koster, 2020; Wozney & Wilson, 2021) and fingerprinting kits suitable for ivory (The Royal Society, 2018). See also Dutton et al., 2013; Felbab-Brown, 2017.

Studies in Tanzania have sought to evaluate the financial benefits of mainly subsistence poaching (Campbell, Nelson & Loibooki, 2001; Hofer et al., 2000; Kinyondo & Pelizzo, 2015, 2018; Lindsey et al., 2013; Maliti, 2019; Mfunda & Røskaft, 2010), with limited research for commercial poaching (Mariki, Svarstad & Benjaminsen, 2015; Kideghesho, 2016).

One suggestion has been to revise the distribution of tourism income (Archabald & Naughton-Treves, 2001; Kideghesho et al., 2005; Vandome & Vines, 2018) with some evidence of a positive change in the perception of conservation (Holmern, Muya & Røskaft, 2007; Wilfred, 2010). Another strategy in Tanzania is community-based conservation (Alpert, 1996; Biggs et al., 2017; Cooney et al., 2016; Goldman, 2003; Igoe & Croucher, 2007; Lee, 2018; Lee & Bond, 2018; Lotter & Clark, 2014; Nelson & Ole Makko, 2005; Mawi & Mashenene, 2020; Mwakaje et al., 2013; Salerno et al., 2016; Trompell, 2019), where the critical question is whether communities are interested in managing wildlife (Ford, 2005; Hariohay et al., 2018; Kahler & Gore, 2012; Kaltenborn, Nyahongo & Tingstad, 2005; Songorwa, 1999; Songorwa, Songorwa, Bührs & Hughey, 2000), especially as those entrusted may be involved in SIMs (Ch.12).

Alternative long-term suggestions include a government budget for tackling poaching (Albers, 2010; Coad et al., 2019), legal hunting for conservation (Nuwer, 2017), strengthening corruption policies and promoting political stability (EIA, 2020; Hauenstein et al., 2019).

Short-term approaches include anti-poaching (Arcese, Hando & Campbell, 1995; Ford, 2005; Gray & Gauntlett, 2017; Hilborn et al., 2006; Nahonyo, 2005; Namkwahe & Nyakeke, 2018; Plumptre et al., 2014; Wilfred, 2010), with operations such as *Tokomeza* (Destroy) and *Uhai* (*Life*) (Baldus, Kibonde & Siege, 2003; Hauenstein et al., 2019) and the recent

implementations of the Analytic Toolkit on Wildlife and Forest Crime and NTAP (EIA, 2020; World Wildlife Crime Report, 2020). However, the militarisation of conservation remains controversial (Duffy, 2014; Duffy et al., 2019; Stiles, 2013) with alternative options including: collar-and-track (Associated Press, 2018), dog olfaction (Phinnet, 2020) and trap cameras (Dasgupta, 2018; Jenks, Hossain et al., 2016; Howard & Leimgruber, 2012; Piel et al., 2015; Laurance, 2013; The Muse, 2020; Ch.12). Although, there has been a recent shift towards field research directly with poachers by Rija and Kideghesho, 2020 and this study.

Until the ongoing efforts can be perceived as beneficial by the populations (Abukari & Mwalyosi, 2020; Bitanyi et al., 2012; Hariohay et al., 2018; Keane et al., 2019; Kicheleri et al., 2018; Kideghesho, Røskaft & Kaltenborn, 2007; Nelson & Ole Makko, 2005; Vedeld et al., 2012), wildlife will continue to bear the burden of poaching (Sinclair et al., 2007) which warrants at the very least an exploration of the potential of the MRA to address the illicit ivory markets.

2.5 Concluding Remarks on the Modernity of Elephants and Ivory

The consumer cycle of ivory throughout the ages (Mann & Sutton, 1998) has been discussed in this chapter. The laws and agreements surrounding elephants and ivory are multi-layered and complex, akin to the criminal markets that flourish between these layers. Adjacently, such laws have labelled *poachers* through a socially constructed crime. What is known is that the demand is historically entrenched in many societies, creating the contemporary demand for illegal ivory.

As with many cases of what was once legal being reconfigured as illegal (and vice versa), these changes always face a degree of resistance and may impact the rate and types of crime (Felson & Clarke, 1998a). The next question is how to manage the impact of this *legacy* in its current environment and through criminological theory, given the criminalisation of poaching.

Within the liminality of colonisation and criminology is Du Bois' (1992) suggestion that criminologists were amongst the defenders of oligarchy through the notion of the 'natural process of selection' (Mathew, 1831; see also Darwin, 1859), which led to Lombroso's positivist criminology (see also Agozino, 2004, 2021). Positivist criminology and other crime science underpinnings are discussed in the subsequent chapter. In closing, it is acknowledged that this thesis is further extending a Western ideology to the illicit markets of ivory in Tanzania. The justifications for doing so are shared in Chapter 4.

Chapter 3: Situational Crime Prevention

The criminalisation of poaching has shifted from colonial gluttony (Agozino, 2021; Aliverti et al., 2021; Ch.2) to one necessitated by the planet's sixth mass extinction (Ceballos, Ehrlich & Dirzo, 2017; Felson & Clarke, 1998a, 1998b; Mann & Sutton, 1998). However, colonial criminalisation still has implications, as once an environment is labelled deviant, it will most likely grow into the label of deviance (Bernburg, 2019a).

This chapter aims to understand the criminological backdrop to the MRA to highlight its strengths and limitations by first presenting an overview leading to SCP and its three theories of: Rational Choice Perspective (RCP), Routine Activity Theory (RAT), and Crime Pattern Theory (CPT). The theories are aligned with wildlife criminology before presenting the criticisms of SCP and concluding with the MRA's understanding of SCP.

This chapter recognises that these theoretical constructs are Western-orientated. Therefore, the critical question is: *How are 'traditional' and 'urban' SCP constructs transferable to rural wildlife crime in non-Western countries?*

3.1 Situation Crime Prevention: Criminological Contexts

This chapter outlines the historical underpinnings of positivist and sociological criminology pertaining to this study and the shift from dispositional to SCP approaches.

Criminology of the 19th century is based on the positivist view that the physical form or genetics makes an offender (Buda, Ceapă & Kozma, 2018; Ferrari, 1915; Ferri, 1895; Garofalo et al., 1886; Lombroso, 1911). This view continues to be explored in epigenetic studies (Leshem & Weisburd, 2019; Portnoy, 2020; Tremblay, Vitaro & Côté, 2018; Tuvblad & Baker, 2011; Weaver et al., 2004). An alternative interpretation is that this unpardonably uses scientific knowledge to sustain historical atrocities of bio-criminology (Agozino, 2004; Becker & Wetzell, 2006; Carrier & Walby, 2015; Larregue & Rollins, 2018).

Shifting to internal defect and individual dispositions (Glaser, 1976; James, 1890, 1892), studies focused on the unconscious sense of guilt and symptoms of crime (Cleckley, 1941; Freud, 1957; Hare, 1980), such as maternal deprivation (Bowlby, 1944; Sanders et al., 2000), inter alia (Brody, 1976; Eysenck, 1965; Hammond, 1964; Hood & Sparks, 1970; Sinclair, 1971, 1975). This led to experimental studies (Clarke, 1985; Clarke & Cornish, 1985, 1978), which were subjected to criticisms (Mischel, 1968; Taylor, Walton & Young, 1973; Wiles, 1976).

In the 1960s, criminology focused on personality traits, cognitive approaches to distortive thinking patterns and unconscious interpretations leading to conscious offences (Adshead, 2016; Eysenck, 1964; Eysenck & Eysenck, 1970; Yochelson & Samenow, 1976). In response, Sutherland and Cressy (1960) identified the differential association theory, which explores criminal learning through:

- Techniques to commit a crime.
- Rationalisations, attitudes, and reasons to engage in crime.
- Excess definitions and labels of criminality rather than legality.

This theory is applied to wildlife crimes, including ivory poaching (Curcione, 1992; Forsyth, 1993; Forsyth & Marckese, 1993a, 1993b; Green, 1990; Kinyaiya, 2013; Mmahi & Usman, 2020; Moreto & Lemieux, 2015b; Scialfa, 1992). One of the central premises here is that as poachers inhabit areas colonially labelled deviant (Ch.2), they may accept the veracity of the labels placed upon them (Bernburg, 2019a; Traub & Little, 1994).

The redirected focus also brought attention to guilt neutralisation techniques. Sykes and Matza (1957) found that juvenile offenders did not display self-accepted criminal personality traits, as they expressed guilt, moral views, and an understanding of illegality (Ch.7). Instead, they revealed a series of cognitive and linguistic processes to offset guilt (see also Matza, 1964; Maruna & Copes, 2005; Shadd & Copes, 2004).

Perpetrator rationalisation is also explored in Western poaching and, to a lesser extent, non-Western poachers (Eck & Clarke, 2019; Eliason & Dodder, 1999; Eliason, 2003, 2020; Enticott, 2011; Forsyth & Evans, 1998; Forsyth & Marckese, 1993a; Fritsche, 2005; Moreto, 2019; Hall, 1992; Hill, 2015; Krange & Skogen, 2011; Mackenzie & Yates, 2016; Muth & Bowe, 1998; O'Rourke, 2014; Rytterstedt, 2016; Stockdale, 1993; von Essen & Allen, 2015; von Essen & Nurse, 2017). These neutralisation techniques overlap the motives for poaching presented in Chapter 2 and include:

Table 2: *Existing literature on poacher guilt neutralisation techniques with overlaps to motives*

Motive (Muth & Bowe, 1998)	**Neutralisation technique**	**Explanation and reference(s)**
Protection of own self and/or property	Necessary self-defence	Attacks from animals, poverty, disease, and economic viability of farms (Campbell et al., 2000; Eliason & Dodder, 1999; Enticott, 2011; Hall, 1992; Hill, 2015; Johannesen, 2005; Moreto, 2019; Shepherd & Magnus, 2004).
Poaching in protest or rebellion	Collective retaliation	Against those condemning their behaviour or condemning the condemners (Bell, Hampshire & Topalidou, 2007; Eliason & Dodder, 1999; Enticott, 2011; Gaodirelwe, Motsholapheko & Masunga, 2020; Krange & Skogen, 2011; Nurse, 2011; O'Rourke, 2014; Hill, 2015).
Traditional right	Claim of entitlement	What was once available is now restricted as a global resource (Brashares et al., 2004; Schneider, 2012; von Essen & Nurse, 2017)
Disagreement with specific regulations	Denial of law	As poachers, they have a greater knowledge of local environments, so they are doing *righter* than the law (Enticott, 2011).

Other techniques with no explicit or obvious overlaps to motivation include:

- Encouraged by friends, loyalty to the community rather than the greater society (Forsyth & Marckese, 1993a).
- The poacher's other good qualities make up for poaching (Hill, 2015).
- Denial of poaching and accidental hunting claims (Eliason & Dodder, 1999; Hill, 2015).

Although not disputing the positivist theory of crime, research indicated that crime is episodic (Sykes & Matza, 1957); criminality results from immediate circumstances (Briar & Piliavin,1965); and dispositions are subject to change (Trasler, 1979). Hood and Sparks (1970) provided a more direct undermining of the positivist school by proposing that delinquency is temporal, but commonplace for most people. As dispositional studies are ongoing, there is an identifiable overlapping development in crime prevention.

3.1.1 Disposition to Environment

It was not until the inconclusive outcomes of dispositional research for policy (Clarke, 1985, p.4; Bowlby, 1944; Clarke & Cornish, 1983; Healey & Bronner, 1936; Ross, 1977; Stott, 1950; Tizard, 1976) that crime was understood through the situational environment (Hirschi & Gottfredson, 1986). Ohlin (1970) progressed to provide functional prevention strategies dependent on crime (opportunity, victims, property, and the necessary conditions for a crime)

(see also Clarke, 1980; Gibbons, 1971; McCarthy & Hagan, 1992; Petersen, 1977) and criminality (individuals' propensities) (see also Cohen, 1955; Cloward & Ohlin, 1960; Merton, 1938).

Initial situational investigations found that crime was influenced by seasonal daylight (Burt, 1925) and interactions between offenders and absconders. The latter also pertains to the learning curve of delinquency (Clarke, 1985; see also Bandura, 1969, 1971; Clarke & Martin, 1975; Cornish & Clarke, 1975), with a central premise that environmental and cognitive stimuli interact to influence learnt behaviour (Ch.7 & 8).

Situational approaches were contested as individuals respond differently to the same environmental cues. This brings into play desistance and opportunity theory, where sociological and criminological factors (Gottfredson & Hirschi, 1990; Laub & Sampson, 2001; LeBlanc & Fréchette, 1989) influence an individual to commit or not commit a crime (Blokland, Nagin & Nieuwbeerta, 2005; Bushway & Paternoster, 2011; Fagan, 1989; Piquero, 2008; Maruna, 2017). As such, the new prevention approaches accept some positivist features in that an individual's upbringing influences offending, but the approaches imply that the situation has a greater impact, and opportunity determines if a crime is committed in that situation (Clarke, 1985; Clarke & Martin, 1975; Cornish & Clarke, 1975).

This understanding developed into categorisations of primarily social (social and psychological causes of crime) and situational (manipulating the physical environment to reduce opportunities), amongst others (Blumstein, Cohen & Nagin, 1978; Brantingham & Faust, 1976; Erez, 1979; Harachi et al., 2003; Hope, 1995; Maruna, 2001; Tonry & Farrington, 1995; Tremblay & Craig, 1995; van Dijk & de Waard, 1991). However, medico-psychological approaches are challenging to implement, with limited effectiveness (Welsh & Hoshi, 2006; Wilson, 1975). For instance, changing the behaviours of ivory consumers (Hall, Milner-Gulland & Courchamp, 2008; Martin, 2019) fails to address historically embedded demand across cultures and generations that could take equally as long to change (Ch.2).

SCP is preferred by some for being arguably easier to implement through manipulating the real-world physical environment (Cornish & Clarke, 2003; Riley & Mayhew, 1980; Wortley, 1996), although some SCP interventions have evolved through community prevention, such as neighbourhood watch programmes (Bennett, 1998; Duncan, 1980), or with justice through Problem-Oriented Policing (POP) (Braga, 2008; Braga & Weisburd, 2010; Burton & McGregor, 2018; Eck & Spelman, 1987; Goldstein, 1979, 1990; Reitzel, Leeper Piquero & Piquero, 2021; Scott, 2010; Scott et al., 2011; Tilly, 2010; Weisburd et al., 2010; Weisburd & Eck, 2004).

3.2 SCP

The situational element of SCP refers to the immediate environment in which a criminal act or behaviour occurs (Argyle, Furnham & Graham, 1981; Birkbeck & LaFree, 1993; Clarke, 1983, p.1; Goffman, 1974; Magnusson, 1981; Moos, 1973; Niggli, 1997; Pervin, 1978; Stebbins,

1967, 1969). Therefore, SCP aims to increase efforts and risks to offend, reduce rewards and provocation, and remove excuses to offend (Clarke, 1980; Clarke & Eck, 2003).

Early SCP experiments (Alexander & Knight, 1971; Buss, 1963; Farrington, 1979; Furnham & Argyle, 1981; International CPTED Association, ND; Milgram, 1974; Wood, 1961) and symbolic interactionist studies (Birkbeck & LaFree, 1993; Blumer, 1969; Cooley, 1922; Katz, 1988, 1991; Mead, 1934; Shibutani, 1961) highlighted the integral role of a situation and defined opportunity as the backbone of SCP (Clarke, 1995, p.57; Felson & Clarke, 1998a, p.2; see also Chiricos, 1987; LaFree & Birkbeck, 1991; Long & Witte, 1981; Luckenbill, 1980).

Although *"…the situation is not exclusive to the person"* it "*is defined…in terms of the inclinations and abilities which the person has acquired…"* (Sutherland & Cressey, 1955, p.77). Therefore, opportunity in crime is seemingly rooted in anomie (Durkheim, 1893), where a lack of commitment to shared values leads to deviant performance due to underlying social conditions (Bernburg, 2019b). This understanding was extended to consider the differential opportunity structures available in criminal sub-cultures to explain how an individual does or does not enter crime (Cloward & Ohlin, 1960). However, not everyone engages in crime simply because they have the opportunity to do so.

Merton's (1975) strain theory explains further that those in underprivileged populations often have limited access to legitimate opportunity structures (see also Linebaugh, 1976). In this context, the basis for crime includes the receipt of something harmful such as bullying, the loss of something positive such as family and the inability to achieve valued goals, such as financial success (Agnew, 1985, 1992, 1997, 2001; Agnew et al., 2008; Agnew & White, 1992; Aneshensel, 1992; Burton & Cullen, 1992; Featherstone & Deflem, 2003; Hirschi, 1969; Isom et al., 2021; Kornhauser, 1978). These developments embedded opportunity on a micro and macro level, linking crime to social and economic inequalities, market-driven beliefs, and institutional control.

Wilkins (1964) illuminated the idea of opportunity in practice by proposing that car theft could be measured if the number of cars is viewed as an opportunity for theft. This led to the development of practical responses for "*a situated event"* (Felson & Cohen, 1980; Gladstone, 1980; see also Birkbeck & LaFree, 1993, p.33), with overlaps to situational control theory and the learning curve model (Clarke, 1977; Downes & Rock, 1982).

The combination of situational control theory and the learning curve model led to empirical studies on specific examples of activities/crimes such as the opportunity for burglary (Tilley & Webb, 1994; Winchester & Jackson, 1982) and the use of CCTV (Criminology, 2010; Gill & Spriggs, 2005; Ratcliffe, 2006a; Skinns, 1998; Tilley, 1993; Welsh & Farrington, 2009b; Welsh & Farrington, 2009b; Wilson & Sutton, 2003). Such combinations have been extended to wildlife *theft*. Therefore, the next critical question is to what extent traditional SCP strategies align with the crimes against non-human animals (Beirne & South, 2007; Mailley & Clarke, 2008).

3.2.1 SCP and Green Criminology

Green criminology has been identified as *"an 'open' perspective and framework (South, Brisman & Beirne, 2013). In one form, it most clearly originates from within the tradition(s) of critical criminology, but at the same time there is no monopoly on engagement with these vital issues"* (South & White, 2013, p.10; see also Cao & Wyatt, 2016; Clifford & Edwards, 2012; Lynch, 1990; Lynch & Stretesky, 2003, 2014; Lynch, Stretesky & Long, 2018; McClanahan, 2020; Nurse, 2015a, 2017a; Potter, Nurse & Hall, 2016; Ruggiero & South, 2013; South, 1998; Walters, Westerhuis & Wyatt, 2013; White, 2008, 2009, 2010, 2011, 2013; White & Heckenberg, 2014). Therefore, green criminology aims to address the urgent issues of crimes, harm and damage to the environment through the "mainstream" developments in criminology, including *"the application of crime prevention techniques to combat poaching and wildlife trafficking (see White and Heckenberg, 2014)"* (South & White, 2013, p.10; see also Brisman & South, 2017; White, 2010).

As a result, 'green criminology' is a broad umbrella term that incorporates several perspectives and theoretical underpinnings. Approaches under green criminology include radical (Lynch & Stretesky, 2003), species and ecological justice (Sollund, 2017), eco-global (White, 2011), conservation (Gibbs et al., 2010), cultural (Brisman, 2012; Brisman & South, 2014), *specieist* criminology (Beirne, 2009), constructivist or cultural (South & White, 2013) and environmental (as understood in mainstream criminology – See Glossary). The latter encompasses SCP and, therefore, the MRA (South & White, 2013, p.13; see also Huisman & van Erp, 2013; Schneider, 2008; Wellsmith, 2010). However, green criminology is in its infancy and is often challenged where green environmental harm, crime and damage may not be viewed as "real" crime or be considered by existing legal frameworks. This is in addition to efforts made by commercial and political entities to contest any evidence, publicising, or prosecution of such crimes (Brisman & South, 2017). Furthermore, previous perceptions of wildlife crime as 'petty offences' can hinder the process of deterrence (Akella & Crawford, 2012; Crow, Shelley & Stretesky, 2013; South & Wyatt, 2011; Wyatt, 2013).

Nevertheless, there have been many developments in aligning poaching to critical criminology due to the IWT's contributions to the proposed epoch of the Anthropocene, the 6th mass extinction and national and international security (Akella & Crawford, 2012; Beirne, 2021; Ceballos, Ehrlich & Dirzo, 2017; Crutzen, 2006; Crutzen & Steffen, 2003; Karl & Trenberth, 2003; Mitchell et al., 2006; Roe et al., 2020; Sahay, 2020; Spapens, 2021).

Poaching under the umbrella term of green criminology has been addressed through differential association (Sutherland & Cressy, 1960; Curcione, 1992; Forsyth & Marckese, 1993b; Green, 1990; Ch.7), guilt neutralisation (Sykes & Matza, 1957; Maruna & Copes, 2005; Eliason, 2003; Eliason & Dodder, 1999; Enticott, 2011; Forsyth & Marckese, 1993a; Ch.7), conflict theory (Feagin, 2001; Holt, 2015; Eliason, 2020), and SCP (Carter et al., 2017; Huisman & van Erp, 2013; Lynch, Stretesky & Long, 2018; Petrossian, 2015; von Essen et al., 2014).

Under green criminology and SCP studies on poaching include: the legal perspective (White, 2008), commission (Moreto & Lemieux, 2015b; Warchol & Harrington, 2016), motivational influences (Bell, Hampshire & Topalidou, 2007; Forsyth & Marckese, 1993b; Liberg et al., 2012; Muth & Bowe, 1998; Wyatt, 2013, 2021; Von Essen, Hansen et al*.,* 2014) and illegal markets (including using the MRA) (Moreto & Lemieux, 2015a; Schneider, 2008; van Uhm, 2016; Wyatt, 2009).

Concerning SCP of the IWT through the MRA (that is inextricably linked to SCP through the shared central rationale that increasing the risks and efforts of crime and decreasing crime opportunities and rewards could disrupt crime (Sutton, 1998; Section 3.4), the exploration falls under environmental and conservation green criminology, providing the framework and background for this study (Brisman & South, 2017; South & White, 2013; White & Heckenberg, 2014). Therefore, this research falls under green criminology, exploring the SCP of illegal elephant ivory poaching in Tanzania by relying on the MRA within SCP (Section 3.4). The placement of this research as green criminology is recognised in existing literature such as Brisman & South, 2017.

Specifically, SCP, through the MRA, of elephant ivory poaching has been collectively proposed for academic exploration (Lemieux & Clarke, 2009; Lemieux, 2014; MacKenzie, 2020; Maingi et al., 2012; Moreto & Lemieux, 2015a; Schneider, 2008) and are addressed through field-research by this study.

The following sections detail green criminology and SCP's new opportunity theories of RCP, RAT, and CPT, starting with the RCP, which has firmly adjusted the pragmatic orientation of SCP.

3.2.2 Rational Choice Perspective (RCP)

Voluntarily executed actions *"are socially derived linguistic representations of reality"* (Glazer, 1976, p.489; see also Newman, Clarke & Shoham, 1997), and when concerning crime, such actions require an exploration of an individual's decisions when selecting a target and situation based on opportunity, risk, effort, and reward (Clarke, 1985; Clarke & Cornish, 1984; Cohen & Felson, 1979; Cornish & Clarke, 1986, 2014; Herrnstein, 1990). Consequently, the RCP is embedded in the works of Matza (1964), Glazer (1976) and Parker (1974) and assumes that the offender's *purposive behaviour, is designed to benefit the offender in some way* (Felson & Clarke, 1998a, p.7; see also Opp, 1997; Simon, 1979).

This understanding of RCP can be divided into *criminal events* (the decisions made to commit the crime and concluding the commission of that crime) and *criminal activity* (the decisions made to become involved in crime, to continue in crime and to desist from crime) (Cornish & Clarke, 1986, 2014). Decisions occur over an extended period if individuals require more information (not always related to the crime), rapidly if influenced by the immediate situation, or over shorter periods when less information is required (Bennett & Wright, 1984; Cornish & Clarke, 1975, 1986, 2014; Maguire, 1980; Maguire & Bennett, 1982).

Decisions can also be made extensively, especially by older offenders (Birkbeck & LaFree, 1993; Reppetto, 1976), less detailed when impulsive (Letkemann, 1973) or quickly by experienced offenders (Carrol & Weaver, 1986). Studies suggest that some planning is involved before crime (Erez, 1979; Petersilia, Greenwood & Lavin, 1978; Sutton, 1998), although this is contested by some (Erez, 1979; Feeney, 1986; Luckenbill, 1981), possibly due to different methods used by these studies (Birkbeck & LaFree, 1993). Letkemann (1973) suggests that planning extends further than deciding on a situation to include the organisation of a crime team akin to the findings of this research (Ch.8).

The concept of *choice* is complicated, and it must be recognised that the 'decision' to offend falls disproportionality and needs to be designed into proximate measures, especially considering the scope of crime displacement through RCP detailed in Section 3.6.

Critics question the creditability of RCP as it fails to accommodate people's actual behaviour and irrational decisions when committing a crime (Becker, 1968; Cornish & Clarke, 1986; Stigler, 1970). Instead, others argue that RCP can be extended to irrational decisions (Hayward, 2007; Ferrel, 1999), refitting this limitation (Becker, 1963; Cohen, 1972; Heineke, 1978; Parker, 1974) to include guilt (Matza, 1964), and drug use (Clarke, 1980). Alternatively, rational decisions lead to irrational crimes (Cornish & Clarke, 2014). There is a clear need to include the psychological understanding of rationality in the RCP (Clarke, 1985; Tversky & Kahneman, 1974). Until then, *"…just as situational theories have to be specific to particular kinds of offences, so too will rational choice theories of crime."* (Clarke, 1985, p.16).

Continuing the critique, some argue that RCP limits the view of sanctions imposed on wildlife crime (including colonial influences) (Kuperan & Sutinen, 1998; Sutinen & Kuperan, 1999; Nurse, 2011). To address this, RCP for wildlife is extended to include macroeconomic factors of employment, land-use and privatisation, human-wildlife conflict and compensation, international market influences (Ayling, 2013; Johannesen, 2005; Osborne & Winstanley, 2006), sanctions and apprehension (Ayling, 2013; Kuperan & Sutinen, 1998; Marteache et al., 2015; Sethi & Hilborn, 2008), defiance and deterrence (Filteau, 2012) and risks of poaching in community-based resource systems (Kahler, Roloff & Gore, 2012).

Regarding RCP and commercial poaching specifically (Brymer, 1991; Crow, Shelley & Stretesky, 2013; Forsyth & Marckese, 1993), economic opportunity influences the decisions to participate in IWT, given that the trade is the third-highest valuable market following on from drugs and firearms (Ayling, 2013). Weru (2016) suggests that experienced and sophisticated poachers may have shifted decision-making to satisfaction and sufficient rather than optimal and perfect (see also Carrol & Weaver, 1986; Cornish & Clarke, 1986, 2014).

With multiple propositions to overcome the limitations of RCP, new reproaches have emerged to include RAT and CPT (Herrnstein, 1990). As discussed next, the RAT is also not without its criticisms (Ekblom, 2008; Welsh & Farrington, 2012).

3.2.3 Routine Activity Theory (RAT)

RAT accounts for changes in crime due to shifts in society (Felson & Boba 2010), with links to lifestyle theory, RCP, defensible space, and optimal foraging theory (Garofalo,1987; Hindelang, Gottfredson & Garofalo, 1978; Mayhew, 1979; Newman, 1972; Vandeviver, Neirynck & Bernasco, 2021). For RAT, the elements of crime include: motivated offender, target (object, person, place, non-human species) and absence of guardians (not necessarily enforcement (Mayhew et al., 1979), possibly even through CCTV (Walsh, 1978; Welsh & Farrington, 2009b). See also Cohen & Felson, 1979; Cohen, Kluegel & Land, 1981; Felson & Clarke, 1998a, 1998b.

This is represented by the problem analysis triangle (Felson & Boba, 2010; Felson & Clarke, 1998b; Vold, Bernard & Snipes, 2002), allowing all three elements to be analysed for potential interventions.

Within RAT is the notion of self-victimisation based on causal links between an individual’s characteristics and their actions (Fattah, 1991; von Hentig, 1948; Wolfgang, 1958; Ch.7). For example, a person purchases a stolen phone and encourages theft, thereby increasing the probability of having their own phone stolen. The RAT also accounts for increased victimisation rates due to increased interactions between offender and target. The latter is, of course, influenced by the target's attractiveness and exposure (access and visibility). These influences are represented by numerous acronyms with the understanding that altering one or more of these elements could deter crime with or without a guardian's presence:

Table 3: Acronyms for favourable targets – RAT

Acronym	Applied to
Value, Inertia, Visibility, and Access (VIVA) (Felson & Clarke, 1998a)	Cybercrime (Yar, 2011)
Concealable, Removeable, Available, Valuable, Enjoyable and Disposable (CRAVED) (Clarke, 1999)	Theft (Armitage & Pease, 2008; Clarke, 1999; Johnson et al., 2008; Smith, 2017) Sex crimes (Beauregard & Martineau, 2015; O'Hara, 2019) Livestock theft (Sidebottom, 2013), Illegal parrot trade (Pires & Clarke, 2011).
CRAVED + identifiability (Sidebottom et al., 2011)	Scrap metal theft (Sidebottom et al., 2011)
Identifiable, Neutral, Seen, Attached, Findable, Executable, Hidden, Automatic, Necessary, Detectable, and Secure (IN SAFE HANDS) (Whitehead et al., 2008)	
Affordable, Transportable, Concealable, Untraceable, Tradeable, Profitable, Reputable, Imperishable, Consumable, Evaluable, and Shiftable (AT CUT PRICES) (Gill & Clarke, 2012; Gill et al., 2004).	Shoplifting (Smith et al., 2013)
Concealable, Available, Processable, Transferrable, Useable, Removable, Enjoyable, and Desirable (CAPTURED) (Moreto and Lemieux, 2015a)	Proposed for ivory poaching (Moreto and Lemieux, 2015a) This study- Chapter 11

Not all acronyms fit all targets (Kooi, 2010; Sidebottom et al., 2011; Sutton, 2010, 2014b), with CAPTURED suited to this study (Ch.11) as it introduces the factor of processed products integral to ivory (Moreto & Lemieux, 2015a).

Criticisms of RAT include the unfalsifiable nature of the problem analysis triangle, where socio-demographic proxy measures lead to ambiguous assumptions that consistently support empirical outcomes (Birkbeck & LaFree, 1993; Miethe, Stafford & Long, 1987; Sutton, 2015, Sutton, 2014b). Lynch (1987) also argues that RAT's definition of crime is broad and cannot be covered by a single model. Moreover, acronym variables do not necessarily correlate to victimisation (Massey, Krohn & Bonati, 1989; Miethe, Hughes & McDowall, 1991; Miethe & Meier, 1990; Sutton, 2010), possibly because the RAT relies on victims for data, who cannot detail the offender's situational appraisals before committing the crime (LaFree & Birkbeck, 1991; Birkbeck & LaFree, 1993).

Despite the criticisms, many studies support RAT (Maxfield, 1987a, 1987b) and extend it to numerous property crimes (Cohen & Felson, 1979; Cohen, Felson & Land, 1980; Cohen,

Kluegel & Land, 1981; Felson & Cohen, 1981), residential burglary (Sampson & Wooldredge, 1987; Stahura & Sloan, 1988), deviant behaviour (Osgood et al., 1996), cybercrime (Holt, Leukfeldt & van de Weijer, 2020; Leukfeldt & Yar, 2016; Reyns, Henson & Fisher, 2016), sex offences (Culatta et al., 2017; Sasse, 2005), substance abuse (de Jong, Bernasco & Lammers, 2019; Pernanen, 1982), maritime piracy (Worrall, 2000), and airport crime (Johnson et al., 2010).

Similarly, green criminology has explored RAT (Laurance, Goosem & Laurance, 2009; Mwampamba et al., 2016; Shaffer & Bishop, 2016; Singh Lallie et al., 2021; Subedi & Subedi, 2017) to understand that poaching occurs when poachers meet target animals in the absence of enforcement (Critchlow et al., 2015; Herbig & Warchol, 2011; Eliason, 2012; Lemieux, 2014; Warchol & Harrington, 2016). Additionally, targets for IWT have been explored using CRAVED (Pires & Clarke, 2012, 2011; Pires & Guerette, 2014; Petrossian & Clarke, 2014; Pires & Petrossian, 2016) and proposed for exploration through CAPTURED (Moreto & Lemieux, 2015a), as presented by this study (Ch.11).

RAT provides a micro-level understanding of motivated offenders with access to targets protected by limited guardians (Cohen & Felson, 1979; Eliason, 2012; Lemieux, 2014). Whereas RCP (Cornish & Clarke, 1986) provided a microeconomic approach to the cost-benefit analysis of offender decision-making (Palmer et al., 2002). CPT, on the other hand, is multidisciplinary, incorporating crime geometry (Brantingham & Brantingham, 1991, 1993), as discussed next alongside the 25 techniques of SCP.

3.2.4 Crime Pattern Theory (CPT) and the 25 Techniques of SCP

CPT considers the movement of people and objects of crime in space and time to estimate when crime may occur (Brantingham & Brantingham, 1993; Felson & Clarke, 1998a; Ratcliffe, 2006b; Rossmo, 2000). This movement is divided into nodes (locations that people travel to and from), edges (boundaries in which people socialise, work, and live) and paths (routes between the nodes and edges) that can be manipulated to deter crime opportunities (Felson & Clarke, 1998a). CPT also considers that offenders can be insiders (committing crimes near their homes) or outsiders (operating on the edges) (Felson & Clarke, 1998a).

CPT has been proposed for wildlife crimes (Eloff & Lemieux, 2014; Haines et al., 2012; Kurland, Pires & Marteache, 2018; Pires & Guerette, 2014), with some studies explicitly focused on elephant migration corridors (Gara et al., 2020), ranger posts and patrols (Maingi et al., 2012), tourist zones, seasonal bias (Cowan et al., 2020; Maingi et al., 2012), paths to waterholes and rivers (Maingi et al., 2012), and end-consumers of ivory (Nan, 2015). This study presents elephant poachers' *MO* in Tanzanian with possible implications for CPT (Ch.9 & 10).

The three theories function with some overlap, allowing some core principles for implementing SCP through 25 self-explanatory techniques (Figure 3) based on Felson's & Clarke's (1998a) ten principles of crime opportunity theories (see also Kurland et al., 2017; Lemieux, 2014; Moreto & Pires, 2018).

Increase the Effort	Increase the Risks	Reduce the Rewards	Reduce Provocations	Remove Excuses
1. Target Harden: Steering column locks and immobilisers Anti-robbery screens Tamper-proof packaging	*6. Extend guardianship:* Take routine precautions: go out in group at night, leave signs of occupancy, carry phone "Cocoon" neighbourhood watch	*11. Conceal targets:* Off-street parking Gender-neutral phone directories Unmarked bullion trucks	*16. Reduce frustrations and stress:* Efficient queues and polite service Expanded seating Soothing music / muted lights	*21. Set rules:* Rental agreements Harassment codes Hotel registration
2. Control access to facilities: Entry phones Electronic card access Baggage screening	*7. Assist natural surveillance:* Improved street lighting Defensible space design Support whistleblowers	*12. Remove targets:* Removable car radio Women's refuges Pre-paid cards for pay phones	*17. Avoid disputes:* Separate enclosures for rival soccer fans Reduce crowding in pubs Fixed cab fares	*22. Post instructions:* "No Parking" "Private Property" "Extinguish camp fires"
3. Screen exits: Ticket needed for exit Export documents Electronic merchandise tags	*8. Reduce anonymity:* Taxi driver IDs "How's my driving?" decals School uniforms	*13. Identify property:* Property marking Vehicle licensing and parts marking Cattle branding	*18. Reduce emotional arousal:* Controls on violent pornography Enforce good behaviour on soccer field Prohibit racial slurs	*23. Alert conscience:* Roadside speed display boards Signatures for customs declarations "Shoplifting is stealing"
4. Deflect offenders: Street closures Separate bathrooms for women Disperse pubs	*9. Utilize place managers:* CCTV for double-deck buses Two clerks for convenience stores Reward vigilance	*14. Disrupt markets:* Monitor pawn shops Controls on classified ads License street vendors	*19. Neutralize peer pressure:* "Idiots drink and drive" "It's OK to say No" Disperse troublemakers at school	*24. Assist compliance:* Easy library checkout Public lavatories Litter bins
5. Control tools/weapons: "Smart" guns Disabling stolen cell phones Restrict spray paint sales to juveniles	*10. Strengthen formal surveillance:* Red light cameras Burglar alarms Security guards	*15. Deny benefits:* Ink merchandise tags Graffiti cleaning Speed humps	*20. Discourage imitation:* Rapid repair of vandalism V-chips in TVs Censor details of modus operandi	*25. Control drugs and alcohol:* Breathalyzers in pubs Server intervention Alcohol-free events

Source: Cornish & Clarke (2003, p. 90).

Figure 3: *25 techniques for SCP (Cornish & Clarke, 2003, p.90)*

More than one technique can be applied for an effective outcome (Eck, 2006). However, the measurement of their effectiveness has yielded few consistent positive outcomes, leading some to question the methods of evaluation (Eck, 2006). Consequently, SCP is not void of reproach, necessitating a rigorous discussion of criticisms and counterarguments.

3.3 Other Criticisms of SCP and the Displacement Hypothesis

In general, the criticism from social reformers is inclined towards the dispositional approach in that SCP does not consider inequality and education. This is similar to the critique from green criminology that SCP does not consider the root causes of social, political, and economic factors (Huisman & van Erp, 2013; Linebaugh, 1976; Lynch, Stretesky & Long, 2018; Shandra, Shor & London, 2008). SCP counters this argument by pointing to fallacy, as one must know the historical causes of behaviour to change behaviour (Ch.2).

Deviancy theorists criticise SCP as atheoretical, with a limited understanding of what behaviours equate to crime. However, all behaviour arises from a person-situation interaction. Therefore, SCP is said to provide a more realistic solution while acknowledging that some crimes are driven by emotions beyond its scope (Clarke, 1980).

The opportunity theories welcome the accusation that SCP ignores areas with sporadic crime and favours the wealthy, who can adopt the SCP tactics (Drake, Aos & Miller, 2009). The counterargument is that SCP is a problem-oriented solution, rightly focused on trouble hotspots where attention is most needed and that governmental responses (CCTV and streetlights) serve most people (Welsh & Farrington, 2009b, 2009a). However, even if these criticisms can be overcome, SCP is critiqued for wrongly inconveniencing citizens to adopt

crime deterrents with some strategies that are intrusive on individual privacy (Big Brother Watch, 2018).

It has also been suggested that the private sector is more involved in SCP and lacks evaluation (Welsh & Farrington, 2012). There is a need for a shift in governmental perception to incorporate the trickle-down benefits of implementing SCP in the private sector for the public sector (Eck, 2006; Welsh & Farrington, 2012).

Of most importance is the displacement hypothesis (Barr & Pease, 1990; Bottoms, 1990; Gabor, 1981; Grabosky, 1994, 1996; Weiss, 1987) concerning displacement through (Reppetto, 1976):

- Temporal – change in time when a crime is committed.
- Target – change in victim (including non-human species)/object/property.
- Tactical – shift in *MO*.
- Territorial – change in location.
- Functional – change to a different crime.

Perpetrator displacement (change in offender) is proposed as a sixth category (Barr & Pease, 1990).

The dispositional understanding is that displacement is inevitable (Clarke, 1985). However, "*conclusive proof of this is extremely difficult to obtain because displacement can in theory take so many different forms"* (Clarke & Weisburd, 1994, p.166). This is because displacement is dependent on resources, discouragement (Zipf, 1949), reduction of crime rewards (Clarke & Cornish, 1985; Cornish & Clarke, 1986) and new motives and rationalisations to alter *MO* for new illicit ventures (Clarke, 1985).

Alternatively, SCP has yielded positive results and diffusion of benefits (Braga, 2006; Eck, 2006; Guerette, 2009; Makkai & Ratcliffe, 2004). It is best explained as *"the spread of the beneficial influence of an intervention beyond the places which are directly targeted"* (Clarke & Weisburd, 1994, p.168). Therefore, displacement is not guaranteed (Gabor, 1990; Hesseling, 1995; Sherman, 1990; Weisburd et al., 2006) and is an *"exception rather than the rule"* (Guerette & Bowers, 2009, p.1357), with the possibility of beneficial or benign diffusion (Barr & Pease, 1990; Clarke & Weisburd, 1994; Guerette & Bowers, 2009).

The impact of SCP is further complicated as it can be accidental or occur before, during, or after the implementation of an intervention (Hassall & Trethowan, 1972; Shandra, Shor & London, 2008; Smith, Clarke & Pease, 2002). There is an essential need for more time-series evaluation as catered for by the MRA (Guerette, 2009; Ch.4).

Inevitably, the displacement theory could materialise if poachers cannot benefit from SIMs. However, the fallacy of the inevitable displacement theory warrants at least an exploration of SCP through the MRA for Tanzanian SIMs.

3.4 Understanding the Intersection of MRA and SCP

The MRA (Sutton, 1993, 1998, 2010, 2014b; Sutton, Schneider & Hetherington, 2001; Ch.4) is part of SCP through the shared central rationale that increasing the risks and efforts of crime and decreasing crime opportunities and rewards may provide promising disruption of SGMs. However, as detailed in this section, the MRA has some identifiable differences in its approach to SCP.

The MRA diverges from traditional SCP in that its primary focus is on reducing the rewards rather than increasing the risk, as found with SCP. In this sense, the MRA addresses the underlying influences, such as stealing, to fuel a drug addiction, consequently addressing the root cause of SCP's displacement hypothesis, as discussed in the previous section. Critical to note is that the MRA does not perceive risk and rewards as two separate elements of crime, as proposed by SCP (Sutton, 2008). Instead, the MRA emphasises that the costs and risks of offending can translate to a lack of rewards by restricting the sale of stolen goods. This, in turn, has the potential of leaving the individual with a stockpile of illicit products and a higher risk of arrest.

The overall principle here is that crime opportunity theory shapes SCP (Clarke, 1984; Felson & Clarke, 1998a). Once again, there is a degree of divergence between the MRA and SCP, as Sutton (2014b) suggests that *"the market, not opportunity, makes the thief"*. This is because opportunity theory considers successful crimes and failed attempts *after* they have happened, often through victim statements. Therefore, opportunity theory does not provide evidence of the offender registering the opportunity before the offence is committed or attempted. In other words, describing an attempted or successful crime cannot equate to an opportunity for the crime. Even when exploring RCPs, it is unclear *"at what point and why the rewards and risks switched to make a once adequately protected target become sufficiently vulnerable"* (Sutton, 2014b). Rather than the opportunity, the existing market provides more realistic pre-crime situations favourable to the MRA.

In addition, the MRA suggests exploring how variations in the demand for specific stolen goods influence the motivation and perceptions of risks during a theft. As well as identifying the *"sufficient motivation switching point"* (Sutton, 2018), both of which can potentially and inadvertently address the limitations of RCP.

Furthermore, mainstream SCP has potential limitations for explaining and addressing wildlife crime as it is limited in understanding underlying motivations, as discussed in Section 3.3. On the other hand, the MRA focuses on the benefits and risks of crime as a single element, thereby exploring offender motivation in conjunction with the understanding that the market makes the thief (Sutton, 1998; Chapter 4). The latter is crucial to this study as the opportunity for elephant poaching is often sought after by poachers who are motivated by the existing market.

Despite the differences at the intersection of SCP and the MRA, it is vital to acknowledge that dependent on the central rationale of addressing risks, efforts, opportunities and rewards of crime, the MRA is SCP. Dependent on the finer details discussed here, the MRA arguably adopts a more realistic pre-crime situational and circumstantial understanding for addressing illegal ivory markets, making it a favourable option for this study, as also acknowledged by existing literature (Lemieux & Clarke, 2009; Lemieux, 2014; MacKenzie, 2020; Maingi et al., 2012; Moreto & Lemieux, 2015a; Schneider, 2008).

3.5 SCP and MRA: Policy Implications

There is an inherent interplay between the ideas that emanate from criminology and public policy (Guerette, 2009; Hassall & Trethowan, 1972; Shandra, Shor & London, 2008; Smith, Clarke & Pease, 2002). Importantly, SCP interventions are specifically designed to inform policy and have done so through a variety of means, including:

- Community-based programmes (France & Crow, 2001; Farrington, 1996; Flynn, 2008; Hawkins et al., 2008; Sherman et al., 2006; Utting, 1999).
- Addressing social exclusion (Cabinet Office, 2006; Chamberlain & Reid, 1998; Henggeler et al., 1998; Sander et al., 2000; Webster-Stratton, 2000).
- CCTV (Koch, 1998; Tilley & Laycock, 2007).
- National Crime Prevention Agencies (Welsh & Farrington, 2012).

Nevertheless, with a lack of clear homogeneity and links between countries, crimes, and underlying motivational factors, the challenge remains to how policy can be replicated – or at least adopted - from one jurisdiction to another. This is especially pertinent when considering the Western origins and adoption of SCP (Runhovde, 2020; Stambøl, 2021). Accordingly, this thesis is open to criticisms for proposing a Western-oriented approach to a rural and non-Western context. Therefore, it is vital to acknowledge that the MRA does not impose preconceived notions or a single solution to an identified problem (Ch.4). Instead, it has an inherent flexibility that has the capacity to build a local understanding(s), informed by those involved in or surrounding the crime, before submitting intervention.

All forms of crime displacement, be it temporal, spatial or crime type, for example, cannot be ruled out, and to accommodate this possibility, the long-term MRA relies on systematic monitoring, analysis, and feedback of implemented interventions (Ch.4). Furthermore, interventions recommended by this research can only be proposed; the actual consequences of adopting the interventions will only come to fruition if policy dialogue considers the findings of this research. However, it remains vital to preconceive and pre-empt what pro-social 'nudge' policy and choice architecture will work in Tanzania and their possible accidental, expected, and unexpected outcomes within this Western complex (Pogarsky & Herman, 2019; Thaler & Sunstein, 2009; Thaler, Sunstein & Balz, 2013).

Reviewing the literature on SCP in green criminology indicates potential for the wildlife-crime nexus. The MRA fits into the SCP framework and shares many similarities, albeit with some finer differences. The MRA is suited to this research in that it is grounded in that *the market that makes the poacher*. Based on the justifications presented here for the MRA in the context of SCP and future policy dialogue, this thesis progresses to explore the literature pertaining to the MRA and SIMs.

Chapter 4: The Market Reduction Approach

Embedded in SCP, the MRA (Sutton, 1993, 1995, 1996, 1998, 2003, 2008, 2010, 2014a, 2014b, 2017) has been proposed for various illicit markets (Bichler, Bush & Malm, 2015), including specifically illegal elephant ivory markets under the discipline of green criminology (Schneider, 2008; 2012; Moreto & Lemieux, 2015a; MacKenzie, 2020). Due to the leading role of the MRA in this research, the following chapter explores the existing literature on the MRA aligned to Tanzania where possible and appropriate.

This chapter acknowledges the primary differences between USGs and ivory and the historical and contemporary typologies of stolen goods. The chapter then progresses to a detailed understanding of the MRA, starting with the origins and principles of the MRA and the typologies of consumers, distributors, and markets. The chapter then explores the demand, supply and price of USGs and the careers in SGMs. This is followed by a discussion on the chain of transactions, the distinguishing characteristics of SGMs, and how they may correspond to Tanzanian SIMs. The chapter concludes by sharing the crime prevention process through the MRA and its limitations.

4.1 Stolen Goods Markets: An Overview of the Problem

Before outlining the key features of the MRA, it is vital to discuss the broader differences and similarities between SGMs and SIMs.

Theft occurs when there is a demand for stolen goods, if the thief has personal use for the stolen goods, or if the thief is 'thrill-seeking' (Angenent, 1981). Those stealing for profit rely on a trusted *fence* (Ch.1) to reduce the amount of time a thief is in possession of the incriminating stolen property, thereby reducing the thief's risk of arrest. Fences also minimise their risks by having multiple thieves and distributors (Steffensmeier, 1986), making it potentially easier to understand how trusted social bonds materialise. This raises some pertinent questions, particularly regarding how this process concerning illegal ivory is operationalised in Tanzania and if the principles for choosing a trusted 'fence' are the same.

Sales of USGs often involve a *"front"* – a façade of legitimate business used to operationalise illegitimate trade – to protect the fence against detection, possibly by claiming to purchase USGs unknowingly (Sutton, 2014b; see also Chappell & Walsh, 1974; Klockars, 1974; Steffensmeier, 1986). Alternatively, when concerning consumers, they may knowingly purchase USGs due to the low prices. However, buyers of raw ivory in Tanzania know they are dealing with an illegal item, and raw ivory cannot be sold through a front under the pretence of being legal. Instead, a front may be used for backroom trading in illegal ivory (BBC, 2019; EIA, 2014; Scientific American, 2014; Smith, 2015).

Conversely, sellers in end-consumer countries may disguise poached ivory (worked or raw) as legal under the façade of corrupted permits or one-off legal stockpile sales (Ch.2). Here, a consumer or distributor may claim to have purchased poached ivory unknowingly.

By further comparison, USGs are diverse to include numerous items (Sutton, 1998), but in Tanzanian SIMs, ivory is the only stolen item of concern destined for international markets with little to no use in Tanzania (Ch.2; Lau et al., 2016; Martin & Stiles, 2003; Wong, 2019).

Of common ground for SIMs and SGMs is that in most cases, thieves have prior knowledge of the existence and operation of illicit markets, and *"that simple knowledge has been understood for centuries to play a general motivating role in theft, because most prolific thieves do not steal goods for their own consumption"* (Sutton, 2017, p.1).

4.1.1 Historical Literature on Stolen Goods

Whilst SGMs change and evolve, it is crucial to recognise that fences have likely *"existed for as long as there have been laws against theft and a demand for stolen goods."* (Sutton, 2014b). Using grotesquely discriminative language, one of the oldest mentions of a fence dates to 16th-century letters to the Council of the Indies in 1542 written by the Archdeacon of Hispaniola:

> *"These thefts are concealed with the assistance of two or three hundred Negros called "fences", who go about the city seeking to make profits…They take away stolen goods for sale and carry and conceal all that they are accustomed to conceal…."* (Translated by Williams, 1963; *c.f. Sutton 2014b*)

In this instance, the fence provided a mechanism by which an individual willing to risk their life to steal could sell stolen goods at a lower risk to buy a temporary reprieve from forced labour—further highlighting the relationship between ivory and enslaved individuals.

The historical literature develops to focus on theft (Henry, 1977, 1978), lending to the motivations of theft (Fielding, 1751; Colquhoun, 1796) and decisions to steal (Bennet & Wright, 1984; Palmer, Holmes & Hollin, 2002; Wright & Decker, 1994). However, historically, the theft had to be proven before a person could be charged for knowingly purchasing stolen goods, while fences and consumers were merely an accessory to the crime (Fielding, 1751). This historical development informed future efforts that first there is theft, then trade, and the latter remained uncategorised (Chappell & Walsh, 1974).

That said, the academic evidence strongly indicates that a thief perceives theft and trade as a single criminal act (Sutton, 2014b), leading contemporary research to consider the critical role of fences and their direct influence on theft and thieves (Fielding, 1751). This instigated stricter laws to increase the risk for thieves, dealers, consumers, and fronts involved in SGMs (Blakey & Goldsmith, 1976; Hall, 1968). Thereafter, Colquhoun (1796) proposes that thieves preferred selling to known consumers and fences to avoid detection, which remains accurate to contemporary SGMs (Sutton, 1993, 1998).

Of note are the notorious 'Thief-taker General' Jonathan Wild and Ikey Solomons (Howson, 1970; Tobias, 1974). Wild would instruct thieves to steal and then sell the stolen property back to the owner. As a reputed citizen, the community relied on Wild when they *lost* something valuable. Wild earned his title by turning in thieves when he needed his reputation defended or possibly his guilt neutralised (Howson, 1970; Matza, 1964; Sykes & Matza, 1957), akin to some operators in SIMs (Ch12).

There has been a shift in contemporary criminology to a detailed understanding of the different typologies of markets of various stolen goods (Allen, 2000; Freiberg, 1997; Stevenson, Forsythe & Weatherburn, 2001). For example, illicit sales in pubs allow for a general acceptance of theft due to bargain prices (Foster, 1990). Such markets that interact directly with the end consumer of ivory products remain beyond the scope of this study but hold possible implications for end-consumer countries.

Before progressing to the MRA and affiliated typologies, the subsequent sub-section addresses the harms caused by SGMs, with this study's data on harms shared in Appendix 3.

4.1.2 A Note on Harms Caused by Stolen Goods Aligned with Illegal Ivory

One of the problematic aspects of SGMs is the unintended outcomes of purposive actions (Sutton, 2014b; Sutton, 2010 p.3) or Merton's (1949) self-fulfilling prophecy (Ch.4 & 7) lending to self-victimisation (Ch.3). In the case of SIMs, this concerns the additional victimisation of elephants and other people (Ch.7; Griffiths, 2017). The latter also pertains to the impact on legitimate markets potentially hindering local economies (Hale et al., 2004; Harris, Hale & Uglow, 2003; Sutton, 2008, 1995, 2010; Walsh, 1976; Pennell, 1979; Weiner, Besachuch & Stephens, 1981).

Another harm of SGMs materialises through internal dispute settlement between the operators in illicit markets, possibly through violence and other crimes (Sutton, 2010; Reuter, 1985, 1990; Venkatesh, 2006; Rosenfeld, 2009). The same harms can also be found within Tanzanian SIMs (Appendix 3; Chimeli & Soares, 2011).

The harms of USGs are extant, primarily through overlaps with organised crime (Brown & Smith, 2018; Francis et al., 2013; Sutton, 2010) and electronic money theft (The Global Initiative Against Transnational Organized Crime, 2017). SIMs share these same risk factors and links to organised crime (Lopes, 2015; Perrigo, 2018; Wittig, 2016; see also Anagnostou, 2021), although it should be noted that the trade in illegal ivory remains a hybrid of organised and disorganised crime (Wyatt, van Uhm & Nurse, 2020). There is a need to understand the diverse types of SGMs to address the resulting *other harms* (Appendix 3).

4.1.3 Typologies in Stolen Goods Markets and the MRA

Previous typologies were tailored to suit the end goals of research rather than cataloguing the variations of SGMs, such as Colquhoun's (1796) and Hall's (1952) typologies used to

support changes in the law for the prosecution of fences (see also Steffensmeier & Ulmer, 2005). It was not until 267 interviews were undertaken with convicted burglars that the sheer variability of SGMs was fully realised (Stevenson & Forsythe, 1998). The interviews suggested the arrangement goes beyond sales to fences, some with legitimate businesses, to include legitimate sales through other avenues. Building on this, Lewis (2006) proposed a 'tiering' of fencing as outlined below:

1. Tier one: Sale directly from thief to fence. Fence sells to a customer or another fence from a store.
2. Tier two: Fence buys from tier-one. Goods may be disguised to establish legitimacy.
3. Tier three: Fence buys repackaged disguised goods from tier two and distributes them to retailers who knowingly or unknowingly purchase stolen goods.

Developing on the complexities of how fences are organised, the MRA (Sutton, 1998, 2010) proposed the following six categories (Sutton, 2014b) discussed in more detail in Section 4.2.4:

1. Commercial Fence: Supplies stolen goods to businesses.
2. Commercial Sales: Goods sold from a business.
3. Commercially Facilitated Sales: Goods sold from auction /online sales.
4. Residential Fence: Supplies fences and consumers from home.
5. Network Sales: Goods sold to friends and associates.
6. Hawking: Goods sold to passing strangers.

Due to the illegality of ivory in modern Tanzania, markets have evolved from openly accepted hawking markets for tourists to theft-on-order by fences. Such change in market types suggests that the legal framework in Tanzania has developed more robust considerations of the illegality of trading in elephant ivory, corresponding to the global awareness of wildlife preservation. This is, of course, considering the challenges of policy implementation and the practice gap due to the issues of illegal markets and bribery, for instance. Thus, in contemporary SIMs, the dynamic between the poacher, fence and legitimate front plays an integral role (Ch.8 & 9). This, in turn, raises policy implications regarding how networks are formed and, ultimately, how the MRA can assist in disrupting them.

Although the literature principally focuses on Western SGMs, this study necessitates an exploration of existing research, if any, on Tanzania SGMs.

4.1.4 Tanzania SGMs

The historical literature on Tanzanian SGMs is limited (Diamond, 1967; Saetersdal, 1999; Shaw, 1997; Sulu, 2018, p.5). However, in 1979, literature records an increase in burglary after the victorious return of Tanzanian soldiers (Heald, 2002), which gave rise to unofficial community policing organised under the *Sungusungu* (Abrahams, 1987; Bukurura, 1996) who

dealt with the perpetrators directly, possibly in the absence of government enforcement (Heald, 2002).

The literature does, however, confirm the existence of established Tanzanian SGMs (Azfar & Gurgur, Working Paper). There is also evidence to indicate the importance of trust between vendors of stolen goods (Burbridge, 2014); overlaps with legitimate sectors (Mlinga, 2001; Mostert et al., 2015) and the complexities of transporting stolen goods across borders (Ackello-Oguto, 1996; Orero, 2008), ports (Eliakunda et al., 2018) (and maritime piracy, Nincic, 2009), and internal land transportation (Christ & Ferrantino, 2011; Naylor, 2010). The literature also acknowledges the influence of drugs and alcohol on theft (Bennett, 1998; Jarvis & Parker, 1989; Kileo, 2016; Ubuguyu, 2013; Xulin Tan et al., 2015) akin to that of Western SGMs (Auld, Dorn & South, 1986; Bennett, 2000; Ferman, Henry & Hoyman, 1987; Struzzi, 1998; Sutton, 1998).

Of note in Tanzanian SGMs is the differentiation between adverse theft and redistribution of resources (*wizi hasada*) and legitimate theft (*wizi halali*) (Kaijage, 2000). Moreover, when broadening the scope of literature, there is evidence for the interconnectedness of SGMs across the African continent with possible implications for SGMs in Tanzania (Huigen,2021).

Overall, the research presented here is clearly in its infancy, with limited theoretical value to assess the viability of the MRA model and situational differences between the West and Tanzanian SGMs.

4.2 The Market Reduction Approach

As acknowledged previously, the MRA has its roots in evidence-based strategies and SCP, specifically borrowing from the philosophy of the RAT (Ch.3; Lum and Koper, 2021; Sutton, 1998; Sutton, Schneider, and Hetherington, 2001). This section explores the MRA (Sutton, 1998; Sutton, Schneider & Hetherington, 2001), including the proposals in the existing literature to apply the MRA to wildlife crime (MacKenzie, 2020; Schneider, 2008, 2012) and even more specifically to elephant ivory (Moreto & Lemieux, 2015a).

4.2.1 Origins and Principles

In the initial reviews of SGMs, Sutton (1993) found a limited understanding of the disposal of USGs and the roles of the consumers, fences, and thieves in redistributing these items. This led to a study based on the British Crime Survey (BCS) (now known as the Crime Survey for England and Wales [CSEW]) and 45 in-depth interviews with thieves and consumers of stolen goods. The former informed on buyers' demographic and social environment, and the latter pertained to: (i) the influence of buyers as motivation for theft; (ii) what goods are stolen if a higher demand for stolen goods results in higher theft rates; and (iii) how knowledge of and access to SGMs influences theft.

With over 100 further in-depth interviews, the MRA was recommended for policy-oriented policing that gave rise to a six-category typology of SGMs (Section 4.2.4) and a problem-specific guide with evidence-based suggestions (Lum & Koper, 2021; Sutton, 2010; Sutton, Schneider & Hetherington, 2001). The US Department of Justice conducted a comprehensive review of the MRA that led to pilot projects in the UK, USA and more recently, Australia and New Zealand (Sutton, 2010; Hale et al., 2004).

These trials highlighted the challenges of long-term maintenance of the MRA and changing the profoundly rooted focus on the single act of theft before trade (Sutton, 2014b; Walsh, 1976). Although the MRA is a supported practice (Sutton, Schneider and Hetherington, 2001; Schneider, 2008, 2012; Moreto & Lemieux, 2015a; MacKenzie, 2020; Bichler, Bush & Malm, 2015), it has not been rigorously proven in implementation. Instead, the MRA's ability to incorporate lateral approaches is seen to be favourable for proactive policing through intelligence-led policing (ILP) (Maguire, 2000; Peterson, 2005; Ratcliffe, 2016) and POP (Ch.3). For the concluding reasons highlighted by Hale et al. (2004 p.14), the MRA is favoured for SIMs:

> *"While quantitatively, results may be disappointing, the qualitative outcomes are much more promising, not least in what has been learnt about intelligence gathering and analysis, about the nature of the markets and about multi-agency co-operation."*

With the aim of decreasing rewards and increasing the costs and risks of operating in SGMs (Ch.3), the MRAs core principles are depicted in Figure 4 as the interagency model (recreated with permission from Sutton, Schneider, and Hetherington, 2001 p.7).

The model caters for a constant state of reflective practice for policing and the realist analysis criteria of *"context mechanism-outcome pattern configurations (CMOC)"* (Pawson & Tilley, 1997, pp.161 & 77). This allows for the maximum number of strategies to be explored, planned, implemented, and evaluated (Lum & Koper, 2021; Sutton, Schneider & Hetherington, 2001). This research on Tanzanian SIMs is primarily located and focused on the beginning of these principles.

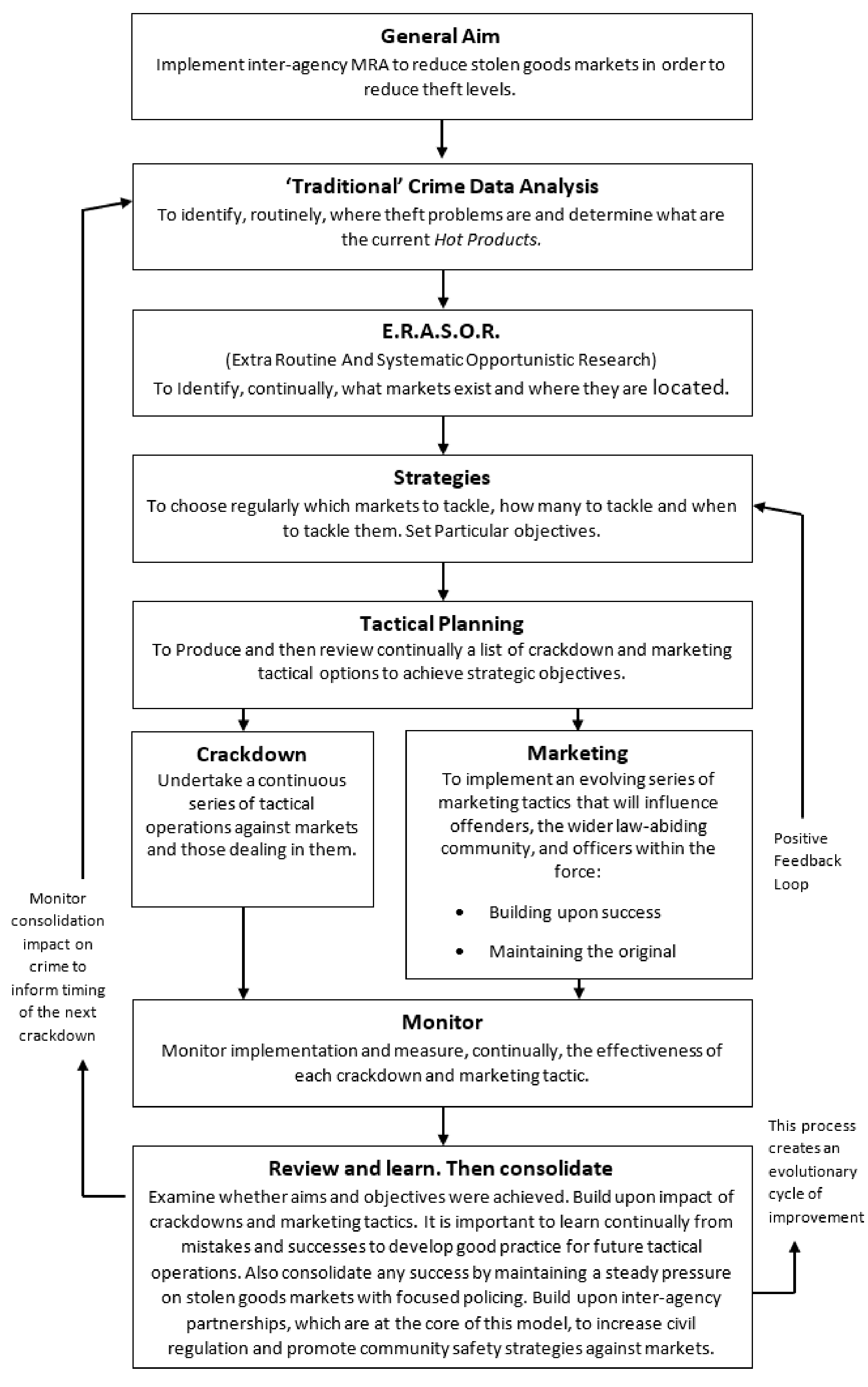

Figure 4: *The MRA interagency model*

4.2.2 ERASOR: Extra Routine and Systematic Observation Research

ERASOR guides information from multiple sources to see beyond the short-term 'snapshot' of a market to identify *"hot products"* and theft problems in specific areas (Ekblom, Law & Sutton, 1996; Sutton, Schneider & Hetherington, 2001). This information complements core 'crime scripts' gathered directly from thieves, fences, and consumers when the opportunity to do so arises (Cornish, 1994; Dehghanniri & Borrion, 2019; Haelterman, 2016). One of the key principles underpinning ERASOR is that in-depth interviews must be conducted in a non-threatening environment, which can be the case with police investigation or prosecution processes. In addition, ERASOR advises on traditional crime pattern analysis to understand the geography and volume of SGMs before implementing preventative strategies to ensure that embedded characteristics are addressed rather than uncharacteristic anomalies.

The suggested sources include:

- Quarterly interviews with thieves, burglars, dealers, and buyers.
- Quarterly surveys and interviews with police officers.
- Interviews with prisoners previously operating in SGMs.
- Interviews with police informants.
- Interviews with businesses known or previously known to deal in SGMs.
- Anonymous crime reporting information.
- Interviews with the public, especially victims and buyers of stolen goods.
- Crime mapping data: theft, storage, sale, hot products, targeted burglary areas and shops selling stolen goods.
- Routine intelligence data from police and other agencies.

In the case of wildlife crime, ERASOR indicates undertaking interviews with *"poachers, middlemen, processors, traders, consumers, law enforcement officials, and informants"* (Moreto & Lemieux, 2015a p.317) as conducted by this study (Ch.6 & Appendix 1). However, crime data analysis was not conducted for this study, as the focal product is the centuries-long *hot product* of ivory. In addition, this study could not access existing data on Tanzanian SIMs. It alternatively presents a historical and contemporary overview of ivory markets and the influences on demand and supply in Chapter 2.

Finally, ERASOR suggests that planning must collaborate with local partners to ensure the proposed strategies do not impact other operations (Sutton, 1998). This suggestion formulates the discussion in Chapter 12 that can be shared for collaborative policy dialogue with various stakeholders.

4.2.3 Typology of Consumers and Distributors

Narrowing the broad understanding of occasional fences (Shover, 1972) and professional fences (Klockars, 1974), Sutton (1998) develops a detailed classification to include the following consumers and distributors:

- Consumer I: Steal and buy for personal consumption.
- Consumer II: Buy stolen goods for personal consumption; do not steal.
- Consumer III: Steal for personal consumption; do not buy stolen goods.
- Distributor I: Buy stolen goods to sell or sell for a commission; do not steal.
- Distributor II: Steal to sell and buy to sell. May sell for commission for other thieves.
- Distributor III: Steal to sell, do not buy to sell. May sell for commission for other thieves.

With the following relationship between them (Sutton, 1998, p.13) (recreated with permission in **Figure 5**):

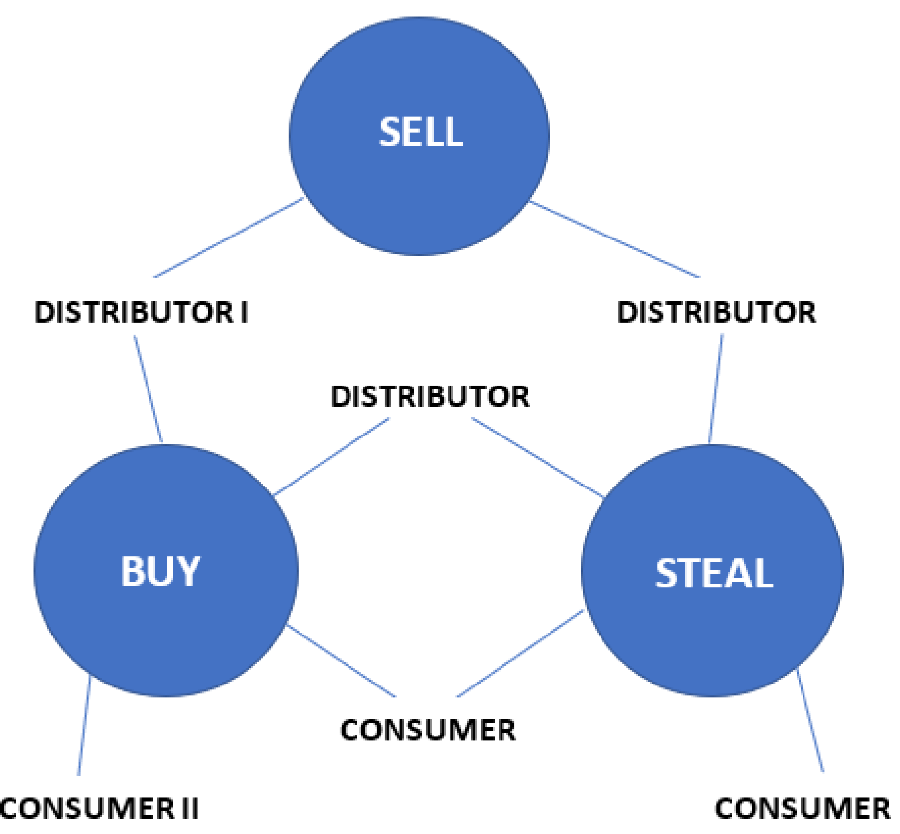

Figure 5: *Distributors and consumers of stolen goods*

In outlining the consumer-distributor relations, Sutton (1998) also shares the following findings, some with possible implications for SIMs:

- Theft occurs when there is *"a general readiness to buy among members of the public"* (Sutton, 1998, p.29).
- Thieves have little to no fear of arrest during theft and sale.
- Ordered-theft by a fence or a consumer.
- Popular products in legitimate markets encourage theft of that product.
- Corner shops, residential fences and pawnbrokers are most likely to buy USGs.
- Pubs and bars are favourable sale locations.
- Shoplifting is an entry avenue into SGMs.
- Drug addiction leads to increased shoplifting and frequent sales.

The varying relations between consumers and distributors and the locations of SGMs create different market typologies discussed next.

4.2.4 The MRA Typology of Stolen Goods Markets

> *"Increased information about the local stolen goods markets may enable targeting of individuals central to the market structure, with potential for significant impact on criminal networks."* (Hale et al., 2004, p.9)

Sutton (2010, 2014b) highlights six SGMs as shared in Section 4.1.3 and individually discussed here to fully contextualise their potential applicability to this research.

In ***commercial fence supplies,*** business fronts are directly approached by thieves selling USGs (Sutton, 1998, 2010, 2014b). This is favourable as the shop is always there, it can make a stolen good legitimate through receipts, the business can take place behind closed doors, it reduces the risk of selling to an undercover officer, cash payments are ensured, and the thief knows where they can quickly take their goods. Moreover, store owners also benefit from protective measures in this typology as they can use record books to claim to have unknowingly purchased stolen property.

It should be noted that stolen goods are not always brought to fronts that explicitly deal in that item – a stolen laptop may be taken to a corner shop. However, items stolen in bulk are usually sold to a single fence specialising in that item to limit the number of transactions and risk of detection (Sutton, 1998). Alternatively, drug users steal more and sell more regularly to multiple buyers to prevent oversupply to a single buyer (Sutton, 1998).

In this typology, businesspeople did not recruit thieves. Instead, they rely on vouched-for-introductions within the network. Over time, introductions develop into long-term relations, allowing ordered-theft of specific items or providing information on where goods can be stolen (Sutton, 1998; see also Cromwell, Olson & Avary, 1991). Alternatively, the risky option is to directly approach a business or buyer and either succeed or fail with the potential of arrest.

Due to a lack of existing literature and evidence, lateral assumptions and speculations for Tanzanian SIMs suggest that fences may be unable to engage in similar protective strategies, fronts may be unable to legitimise the sale of ivory, there are most likely limited to no local end-consumers of ivory, and there may be limited drug addiction fuelled theft of ivory (Section 4.1.4). This is not to say that drugs are not a driver somewhere in the chain, but it is more likely an outcome than a motive. On the other hand, networks, introductions, and trust-based relations may be vital to SIMs, including the resulting theft-on-order (see also Mmahi & Usman, 2020). Moreover, SIMs may be conducted using fronts, with sales taking place behind closed doors or in back rooms, and where the fence may provide the poacher with information to assist in the theft of ivory.

In a ***commercial sale***, a fence sells to another distributor, who then sells to a consumer for additional profit (Sutton, 1998). Most consumers are innocent purchasers as items may be repackaged or sold under the pretence of legitimate used goods. Although commercial sales are probable in end-consumer countries dealing in ivory products, disguising the ivory as legitimate is improbable for Tanzanian SIMs unless illegitimate paperwork accompanies the ivory.

In addition, fences in commercial sales are known to be more prepared as they have *"somewhere to store the goods, can transport them and has access to an existing customer base"* (Sutton, 1998, p.35). This ensures that the seller can accumulate higher profits than, say, a hawker without increased risks of detection. This is possible in Tanzanian SIMs, where a distributor may buy ivory to store until favourable export conditions and prices are available (Milliken et al., 2018).

Commercially facilitated sales (e-Selling) include residential or commercial fences and thieves who knowingly sell stolen goods through advertisements to increase their customer base (Sutton, Schneider & Hetherington, 2001; Sutton, 2010). Goods are delivered through online processes or by directing the customers to the fence's businesses (Sutton, 2010; Aniello & Caneppele, 2018; Skelton, 2005; Wilbur, 2004). This market type is beyond the scope of this study due to the difficulties in knowing if online distributors operate from within Tanzania (Mlelwa, Chachage & Zaipuna, 2015; Ch.2).

Residential fences are supplied by thieves directly at their residences where the transactions are conducted privately and because residential fences are more likely to buy USGs than occasional buyers (Sutton, 1998). In some cases, the residential fence does not immediately pay the thief but does so after selling forward (friends, family or acquaintances who may be consumers or other distributors) and pocketing a profit (Sutton, 1998; Wright & Decker, 1994). Operating with close associates reduces the risk for sellers and thieves. This market is assumed plausible for Tanzanian SIMs, but the academic evidence is not there and remains in the realms of speculation.

Network sales rely on word-of-mouth between friends, relatives, and acquaintances (also applicable to a residential fence), where if a fence acquires a hot product', then it leads to a

greater demand for that product from their customer base, resulting in increased theft of that item (Sutton, 1998). Here, sales are conducted privately and can occur anywhere (business fronts, residents, or any other pre-agreed-upon location). Network sales overlap with all other market types where goods can be sold along the network to buyers and sellers in other market types, with each distributor increasing the price until it reaches the consumer. Due to these dynamics, this market is the most difficult to police and is preferred when expensive goods are stolen (Sutton, 1998).

The Tanzanian SIMs may be network sales, as ivory is expensive, sold along a chain, each transaction may increase the price, and a network fence may sell to other distributors capable of exporting the ivory.

Hawking markets often pertain to inexperienced thieves who sell directly to consumers without intermediary fences. Fences may be reluctant to deal with hawkers, sometimes due to their reliance on drugs or alcohol (Cromwell, Olson & Avary, 1996). As aforementioned, this market applied to historically SIMs, with limited to no role in modern SIMs.

Ordered-theft exists in four markets (excluding hawking and e-Selling) and can be instigated by customer request through a fence. Fences may have standing orders for theft (Sutton, 1998), especially concerning goods in limited supply, fast-moving goods, highly desirable items, and/or insider knowledge of high-value items (Gill et al., 2004; Smith, 2017; Walsh, 1977).

It takes highly motivated thieves to meet orders due to the extensive efforts, high risks, and multiple expeditions that may be needed to meet the order. In most cases, the price is negotiated in advance, so the goods represent cash, further motivating theft (Wright & Decker, 1994; Sutton, 1998). After successful theft, the thieves may hide the goods until the buyer can collect and transport the items (Kock, Kemp & Rix, 1996).

Of note is that quick sales refer to when thieves and sellers are forced to sell stolen goods to avoid detection at a lower than the regular price (Wright & Decker, 1994). Both quick sales and ordered theft can be expected in Tanzanian SIMs, with the latter dependent on pre-negotiated prices to motivate poachers to face the challenges of tracking, hunting, extracting, and delivering tusks.

The relationship between the five original markets (excluding e-Selling) is presented in Figure 6 (recreated with permission from Sutton, 1998 p.44). Depending on the existing knowledge base, it is not unreasonable to assume that a similar overlap of markets, albeit with different dynamics and a possibility of a new market type, may be present within Tanzanian SIMs.

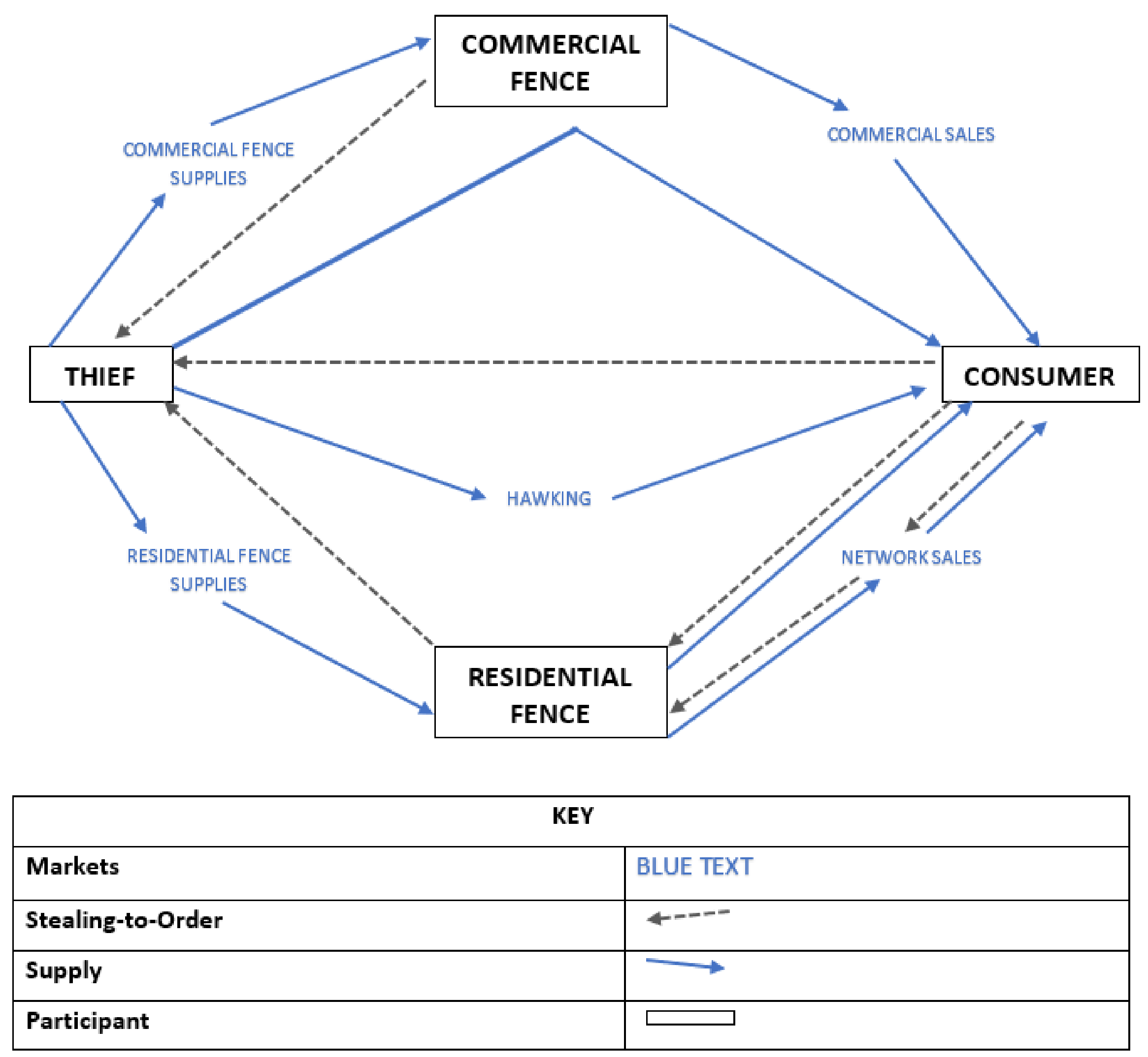

Figure 6: *Stolen goods markets*

4.2.5 Demand, Supply and Price in SGMs

The main predicament for SGMs is that to increase profits, one must increase their risks (larger customer and supply base or more theft) (Eck, 1994; Sutton, 2010). Demand elasticity for SGMs suggests that when the price increases and the sale volume does not decrease, the inelastic demand favours the seller. Elastic demand favours the buyer, where higher prices mean a lower sale volume, encouraging the price to decrease. SGMs are most likely elastic, with buyers less likely to pay high prices for illicit items (Sutton, 1998). This understanding can predict goods of inelastic demand that may need increased policing and anti-theft strategies.

How international demand (Ch.2) impacts ivory theft in Tanzania remains unclear. It is, however, assumed that the high value of elephant ivory creates an inelastic demand (Mason, Bulte & Horan, 2012), and even if elastic, the price may not decrease ('t Sas-Rolfes et al., 2019). It is essential to keep in mind that the durability of ivory allows it to enter back into legal and illegal markets after confiscation, clouding the estimations of demand and supply.

Concerning price, Western research suggests that an experienced thief could get between one-third and a half of the fence's selling price (Sutton, 1998, 2014b; Steffensmeier, 1986; Quennell, 1966). Thereafter, when a fence sells to a buyer who knows the goods are stolen, the price remains at half the retail price. Conversely, when the customer unknowingly purchases the stolen goods, the distributor typically pockets up to two-thirds of the retail price (Sutton, 2014b). However, this does not mean that the price of stolen goods will always be lower than the retail price, as in some cases, they can be sold at the retailer's price, depending on the item (Sutton, 1998; Steffensmeier, 1986; Walsh, 1976).

Notably, the retail price of ivory products may play a lesser role in the theft of ivory (Lopes, 2015), but demand-driven changes in illicit markets may impact theft (Hauenstein et al., 2019; McNamara et al., 2016). It is assumed that the same complexities can be applied to raw ivory depending on where the product is investigated along the chain of sales (Ch.2 & 10).

4.2.6 Careers of Stolen Goods Operators

Existing SGMs may encourage a criminal career in theft and fencing dependent on the perceptions of opportunity, reward and ease of sales created by the existing market (Farrington, 1999; Shover, 1996; West, 1996). Early successes in the perpetrators' careers and access to a quick reward system motivate them to continue operating illicitly (Sutton, 1998; see also Howson, 1970; Johnson, Natarajan & Sanabria, 1993). However, deeper insight suggests hierarchy and informal "mentoring" as professional thieves may assist and encourage new thieves, and fences may guide novice traders or recruit new thieves into SGMs (Howson, 1970; Sutton, 1998). Such form of recruitment (Moneron, Armstrong & Newton, 2020) has been extensively covered for other illegal activities (Calderoni et al., 2021; Hamilton, 2009; Harding & Hamilton, 2009; Kennedy et al., 2007; Meráz García, 2006).

Although Chapter 2 presents the motives for ivory poaching, it does not inform how poachers are recruited into SIMs. This study's findings are shared in Chapter 8, while the following section addresses the chain of transactions operationalised in all market types.

4.2.7 Chain of Transactions: In-between Supply and Demand

This section details the processes between supply and demand as informed by Sutton (2010) (recreated in Figure 7 with permission). The decisions made by thieves and fences must be considered at each stage to assist market disruption tactics.

Figure 7: *The chain of transactions in stolen goods markets*

Starting with *theft*, discussions depend on the choice of targets shared in Table 3, Chapter 3. At this juncture of target selection and the MRA, this research finds its overlap between SGMs and SIMs. Within this context, this thesis contributes to the knowledge gap through real-world and on-the-ground research with those directly involved in SIMs to explore both the fitting of CAPTURED and the MRA to wildlife crime.

Regarding *concealment* after theft, studies suggest a preference for bin bags, bedsheets, suitcases, and pillowcases from victims' homes to cover, carry and stash USGs (Sutton, 1998; Wright & Decker, 1994). Prolific thieves have no specific routine but prefer to conceal in clothes, rucksacks, or branded carrier bags to help them blend in with other shoppers (Hunter et al., 2018; Schneider, 2005). The concealment in SIMs is shared in Chapter 9.

Concerning *concealment and transport*, Sutton's (1998) respondents admitted to using their private cars or public transport, including private hire taxis (see also Kock, Kemp & Rix, 1996). In the latter option, drivers may be unaware of their participation in theft. However, in many cases, the thief and driver would have evolved partnerships, where the thief would pay a flat rate or a pre-negotiated cut from the sale of stolen goods. Alternatively, concealment and transport can be conducted on foot, as found with prolific shoplifters, especially if reliant on drugs or when making an illicit sale near their home (Hunter et al., 2018; Rengert & Wasilchick, 2000; Wiles & Costello, 2000; Sutton, Schneider & Hetherington, 2001). However, once the thieves are known to enforcement and shop owners, they travel to steal in other locations.

Transport after stealing is often followed by transport again as the goods move from thief to fence within 24 hours (Sutton, Schneider & Hetherington, 2001). Alternatively, transport after theft may be for safe storage or stockpiling. A similar approach of using taxis during theft and storage or sale after theft applies to SIMs with some cultural and infrastructure variances (Ch.8, 9 & 10; see also Gamberini, 2014; Mbegu & Mjema, 2019).

Concealed storage after theft includes public and semi-public areas, with alleyways as the preferred option despite other perpetrators stealing others' caches (Sutton, 1998). On some occasions, a fence may be brought to the storage location rather than the thief, incurring the risk and cost of transportation (Sutton, Schneider & Hetherington, 2001; see also Ch.9 & 10 for the storage and disguise).

A thief's preferred option for *market and disposal* is through fences and friends, and if reliant on drugs, then through trading for drugs (Schneider, 2005). This is an expected outcome given that 40 per cent of the respondents in Schneider's (2005) study knew who and where they would sell before stealing and that 84 per cent experienced stealing-to-order. When applied to Tanzanian SIMs, one of the main differences in disposal is that poachers and traders cannot dispose through consumers. Instead, final disposal equates to international exports, after which conceal, disguise, disposal, and market components may repeat themselves in transit and final sale to consumers (Ch.9 & 10).

Given the durability of ivory, endless chains of transactions can be assumed globally, with the Tanzanian chain depicted in Figure 28 as informed by this study's findings.

4.2.8 Distinguished Characteristics of Stolen Goods

The distinguishable characteristics of SGMs include Small Markets, Morality in Criminal Motivation, Violence (Section 4.1.2), and the Morality of Self Interest.

As each player in the market must lower their risks by gathering information on those they employ and deal with, the SGMs are *Small Markets* (Reuter, 1985; Sutton, 1998). The same is expected for SIMs, perhaps of even smaller size, due to the uncommon practice of legitimately dealing in ivory.

The *Morality of Criminal Motivation* must be regarded as that either the law, environment or society creates a crime (Ch.2 & 3) and must be understood as how a person perceives their criminal actions or neutralises their guilt of those actions (Sykes & Matza, 1957; Ch.3). In SGMs, this pertains not only to the thieves and fences but also the law-abiding citizens who purchase USGs. The readiness of citizens to conduct illicit purchases allows the thieves and fences to claim guilt neutralisation and motivation by suggesting that the demand by lawful citizens makes the SGMs (Parker, 1974; Mayhew et al., 1976; Sutton, 1998). The ivory consumers might also engage in similar guilt neutralisation. At the same time, the poachers and fences can claim the international demand and existing SIMs to neutralise their actions and motivate their participation in SIMs (Ch.7).

Violence, commonly expected in any illicit market, results from the confrontation between buyers, operators, or thieves or with one another due to the limited options to resolve and redress a crime within a crime (Reuter, 1985; Sutton, 1998). The same can be expected in the IWT and Tanzanian SIMs (Appendix 3).

The *Morality of Self Interest* is best explained as *"not 'doing it on your own doorstep"* (Sutton, 1998, p.69; see also Parker. 1974; Stone, 1975), which may result in sub-groups policing and controlling an area, sometimes through violence (Sutton, 1998). The practice of self-policing driven by theft is witnessed in Tanzania (Section 4.1.4). However, it may not apply to SIMs due to the potentially normalised practice of hunting in rural sub-cultures.

Having understood the origin, principles, typologies, demand-supply, price, operators, and chains of transactions of SGMs, the following section explores how these illicit markets may be disrupted.

4.3 Tackling Stolen Goods Markets Using the MRA

Previous mitigative strategies for SGMs focused on storefront sting operations (Langworthy, 1989), which have since been discredited for encouraging theft. In response, reverse-sting operations have proven effective in the USA (Weiner, Besachuch & Stephens, 1981). However, an alternative and valuable method is the MRA that increases the effort: (i) for the thief to steal and sell; (ii) for the fence to buy and sell; and (iii) for a consumer to buy USGs. Secondly, the MRA aims to make it risky: (i) for the thief to steal and transport; (ii) for the fence to knowingly buy and transport; (iii) and for consumers to knowingly purchase, transport and own USGs.

Finally, the MRA aims to limit the rewards for theft and trade in SGMs by reducing the price, which in turn: decreases the attractiveness and motivation to steal; reduces the fences' profit margins; and increases consumer guilt to outweigh consumer motive to purchase stolen goods (Sutton, 1998, 2010; Sutton, Hodgkinson & Levi, 2008; Sutton, Schneider & Hetherington, 2001).

The MRA is used to understand the movement of stolen goods from theft to trade, after which interventions focused on effort, risk and reward can be considered and discussed before pilot and implementation. Understanding the markets and applying reduction approaches is the process of the MRA, and one cannot take place without the other. This is especially the case as there is no one fixed solution to a problem. Instead, the MRA relies on locally tailored evidence-based interventions. To accommodate these aims, the MRA offers long-term inter-agencies and short-term crime reduction options divided into:

Strategic

- Developing guidelines (Sutton, 1998, p.24).
- Monitored steering groups (multiple stakeholders).
- Liaison with justice departments.
- Predicting the mechanisms of chosen tactics.
- Evaluate implemented strategies (Section 4.2.1).
- Avoid costly and resource-intensive tactics.

Operational

- There is no "off-the-shelf" formula; problems require tailor-made solutions.
- Adhere to planning.
- Focus on identified fences that pay *fair prices* as they encourage theft.
- Use laws on theft to determine the evidence needed.

- Establish good public presence through news reports.
- Consideration of the impact of sting operations.
- Establish clear links, identified terms and collaborative relationships with local authorities and other agencies – budget for inter-agency work (Sutton, 2010, pp.14-15); access a list of stakeholders to collaborate with (Sutton, 1998, pp.22-23).

Evaluation

- Before implementation, evaluate if this is the most cost-effective plan.
- Evaluate the balance of costs and the amount of data collected, and justify the targets of the tactics (location, victims, property).
- Monitor the implementation and impact of a project.
- Define measures of success to prevent false claims of success through unintended outcomes of a tactic (Sutton, 2010, p.20, 1998, pp.25-26, 32-38; see also Eck, 2010).
- Aim to limit and evaluate displacement of crime (Sutton, 1998, pp.35-37).
- Do not only implement short-term tactics that are easily monitored.

Conclusively, there is no definitive list of reduction strategies to *pick and choose* from. This aspect makes the MRA flexible to accommodate SIMs in non-Western countries as it relies on local data to inform tailored solutions. Nonetheless, there is some guidance for each market typology based on SGMs in the UK, which may be considered should local data overlap the findings by Sutton (1998):

Market type	Strategies (Sutton, 1998, pp.vii-viii&26-30)
Commercial fence supplies and sales markets	• Use ERASOR to identify shops frequented by thieves. • Monitor the fronts for evidence. • Implement legislation requiring shopkeepers to record proof-of-identity of the sellers of second-hand goods. • Test-selling to evaluate a business is meeting legislation. • Property marking, although seen as unreliable by some (Hale et al., 2004; Harris et al., 2003; Sutton, 1998, 2014b). • Monitor taxi drivers. • Conduct interagency collaborations.
Residential fence supplies and sales markets	• Use ERASOR to identity fences and drug dealers (who trade in stolen goods) and their operations. • Question victims of burglary about local traders of drugs and stolen goods. • Collaborate with local authorities and housing agencies for eviction of perpetrators. • Recycle unclaimed stolen goods to uninsured victims and potential customers of fences. • CCTV and surveillance teams in residential areas with known SGMs.
Network sales markets	• Arrest residential fences. • Implement rule settings schemes (see also Clarke, 1997). • Implement publicity campaigns to discourage purchase in SGMs. • Crime reporting hotlines – encouraged through the publicity campaigns.
Hawking markets	• Use ERASOR to identify hawking locations. • Monitor hawkers carrying holdalls to transport stolen goods. • Arrest hawkers and their customers. • Use media to expose the number of arrests and convictions to reduce demand and sale. • Implement poster campaigns to raise awareness on theft cycles and self-victimisation. • Crime reporting hotlines – encouraged through the publicity campaigns.

Figure 8: *Market types and proposed strategies*

Applying to all markets is the tactic to inform all operators in SGMs of the increased risks and reduced benefits caused by the implemented tactics (Sutton, 1998, pp.32-33). All tactics should have monitoring mechanisms to incorporate the needed changes into the future management of the tactic(s) (Sutton, 1998, pp.34-38; Section 4.2.1).

A more comprehensive list is depicted in Figure 9, Figure 10 and Figure 11, taken from Sutton (2010, p.9-31) with permission (for the tactics proposed by this research, see Ch.12):

Response No.	Page No.	Response	How It Works	Works Best If...	Considerations
General Considerations for an Effective Response Strategy					
1	22	Adopting a comprehensive approach to stolen goods markets	It reduces both the supply and the demand for stolen goods	...it's based on known effective practices	It can be difficult to maintain a focus on stolen goods markets as opposed to the traditional focus on original thefts
2	22	Establishing and sustaining multiagency partnerships	It improves communication and coordination among key responders	...working groups coordinate activity and maintain focus, and written protocols establish clear responsibilities and authority	Partner agencies can have differing priorities and goals; large partnerships can be difficult to manage and sustain
3	22	Improving investigations of stolen goods markets	It increases the risks of apprehension to offenders	...detectives and officers are open to changing conventional investigative practices	It may require additional resources to devote to stolen goods markets

Figure 9: *General considerations for an effective response strategy*

Response No.	Page No.	Response	How It Works	Works Best If...	Considerations
Specific Responses To Reduce Stolen Goods Markets					
4	24	Regulating and inspecting pawn- and secondhand shops	It increases offenders' effort to sell stolen goods and their risk of apprehension	...merchants can comply with regulations relatively simply and efficiently, and police enforce regulations consistently and fairly	It may require new legislative action requiring careful police justification; it may require merchants to buy new computerized records and data sharing systems; it may require additional police investigative resources
5	24	Conducting reverse-sting operations	It promotes greater compliance with regulations restricting the purchase of stolen goods	...police conduct them regularly but at unpredictable intervals, and they focus them on problematic locations	It may require additional investigative resources
6	24	Conducting publicity campaigns to discourage buying suspected stolen goods	In conjunction with wider anti-fencing initiative it reduces the demand for stolen goods and increases offenders' efforts to sell them	...they are carefully designed and tested before full implementation	It can waste resources if it's ineffective or backfires by encouraging more offending; it can be expensive
7	25	Encouraging those who facilitate stolen goods markets to report thieves and fences	It increases offenders' risk of apprehension	...informants are provided adequate incentives to provide information and safe avenues to do so	It can increase informants' risk of intimidation or retaliation from offenders
8	26	Closing down fencing operations	It increases offenders' efforts to sell stolen goods and reduces the wholesale demand for them	...police shut down a sufficient number of—or sufficiently large—operations	It requires careful and perhaps resource-intensive investigations
9	26	Seizing assets connected to stolen goods markets	It denies offenders the rewards of trading in stolen goods	...antifencing operations have sufficient assets on hand to deter future offending	Some state asset-forfeiture laws are restrictive and difficult to enforce

Figure 10: *Specific responses to reduce stolen goods markets*

Response No.	Page No.	Response	How It Works	Works Best If...	Considerations
Responses With Limited Effectiveness					
10	26	Improving systems for disposing of recovered stolen goods			It is unlikely to reduce theft or stolen goods trading; it may be too resource- intensive
11	27	Conducting traditional anti-fencing sting operations			It can have the unintended effect of increasing local demand for stolen goods
12	28	Promoting property-marking schemes			Thieves tend to steal and consumers tend to buy even marked property. When police presence returns to normal, crime rates rise to previous levels.

Figure 11: *Responses with limited effectiveness*

Finally, at the end of a tactic, it is vital to have a withdrawal plan incorporating detailed record-keeping of successes, failures, and recommendations for future crime reduction (Sutton, 1998). Although the MRA provides logical, clear instructions and straightforward options, it does have a well-documented "implementation" gap and a 'responsivity' element of policy implementation that suggest some limitations must be discussed in the following section.

4.4 Limitations and Endnotes on the MRA

The primary limitation of the MRA is that two independent evaluations found the MRA theoretically robust but challenging to implement for long-term use (Harris et al., 2003). There also exist short-term challenges where enforcement did not always adopt the most promising tactic recommended by the MRA (Harris et al., 2003). Nonetheless, the MRA provides decolonised means to collect local data and evidence to understand previously less illicit markets, as used by this study.

A further limitation concerning this research is applying a Western approach to a non-Western environment. Nevertheless, as discussed, the MRA does not impose a specific reduction tactic on the situation. Instead, it requires locally tailored solutions with the capacity to adopt a decolonised approach, which is cognisant of the applicability of the plasticity of the MRA for Tanzanian SIMs.

Unlike the MRA, it is suggested that researchers are unaware, or are unable to distinguish, imperialist and colonial influences of their research method – therefore passively continuing ingrained norms, albeit misleading practices (Said, 1978). This is especially relevant in the context of this study, and in response to this, the following chapter addresses this research's methodological and philosophical underpinnings in an attempt to avoid a tacit acceptance of colloquial and possibly colonial methodologies.

Chapter 5: Methodology

Poorly designed research that lacks methodological clarity and transparency is unlikely to provide the foundation for further research, developments, or policy recommendations (Davies, Nutley & Smith, 2000; Guba & Lincoln, 1994; Marks, 2002).

For research to be well designed, the study's philosophical underpinnings (epistemology, ontology), methodological assumptions, contemporary reconceptualisations of traditional methods, and the appropriately chosen method must be discussed transparently and coherently, as shared here. This chapter articulates defensible decisions on the chosen methods and why they were deemed the most appropriate to critically analyse the applicability of the MRA to tackle Tanzanian SIMs.

5.1 Philosophical Underpinnings

A researcher's philosophy is integral to understanding the original contribution to knowledge and how that knowledge was created, on what beliefs and assumptions were the data analysed, and the results presented (Guba & Lincoln, 1994; Okasha, 2002; Saunders, Lewis & Thornhill, 2016, p.124). This is presented with further challenges in criminology as crime is a social construct, as discussed through ontology and epistemology (Arrigo & Williams, 2006; Christie, 2004).

Ontology shapes the way a research question is proposed depending on how realities are perceived, broadly divided into: a single truth or realism independent of an observer (natural sciences), multiple realities, or constantly reshaped multiple realities. Both the second and third lend to social sciences (Arrigo & Williams, 2006; Büchel, 1989) and are often criticised for the ruse of relativism (Binder, Holgersen & Moltu, 2012; New World Encyclopaedia, 2015) and false consciousness (Deutsch, 2011; Lukes, 2011; Okasha, 2002; Popper, 1935, 1972). In response, relativists criticise their critics for a false universalism sometimes through cultural imperialism (Agozino, 2021; Holiday, 2007; Smith, 1999).

Epistemology questions the methods and assumptions used to create knowledge from reality (Bayer & Stölting, 1989; Bryman & Bell, 2015; Büchel, 1989; Ledoux, 2002) and is divided into:

- Quantitative or positivist – a measurable approach pioneered in social sciences by Comte (1848, 1851-1854, 1856; see also Mair, 2004a, 2004b; Marks, 2002; Root, 1996, p.46) and lending to *objectivity* (Chalmers, 1982; Bottoms, 2000; Durkheim, 1965; Lupton, 1998; Stanley & Wise, 1993; Williams, 1981, 2005; Wilson, 2010).
- Qualitative or interpretivist – born from the criticism of the positivist and lending to *subjectivity* (Bayer & Stölting, 1989; Bhaskar, 1975, 1989, 1997; Clifford, 1988; Creswell, 2014; Hollis, 2003; Mead, 1936; Merton, 1995; Payne, 1974; Ramanathan, 2008).

- Pragmatic – a combination of both (Creswell, 2014; Peirce, 1905; Tashakkori & Teddlie, 1998; Trahan & Stewart, 2013), with some overlap with triangulation (Casey & Murphy, 2009; Denzin, 1970, 2012; Onwuegbuzie & Leech, 2006; Patton, 1999).

All three have been used in criminology to deliver knowledge (Adler, 1985; Becker, 1963; Wright & Decker, 1994). Differences between these approaches should be acknowledged as different branches of science rather than a concluding difference between natural and social science (Lewontin & Levins, 1998; Okasha, 2002). Here considerations include falsifiability (Büchel, 1989, p.227; Popper, 1935, 1972) and criticism of "paradigms" (Bateson, 1972; Cock & Forsdyke, 2008; Kuhn, 1962).

This research is focused on the *qualitative* method that can be further understood as inductive, allowing the researcher to derive from socially constructed meanings by participants (Caulfield & Wonder, 1994; Fay, 1996; Miles & Huberman, 1994, p.10; Saunders, Lewis & Thornhill, 2016). Or deductive or abductive (DuBois & Gadde, 2002; Yin, 2013, 2014), leading to three schools of thought that follow *verstehen*: ethnomethodology; symbolic interactionism and structuralism (Langer & Beckman, 2005; Spicker, 2011; Wells, 2004; Willig, 2001).

Popper (1963, 1972) argues that the best that can be achieved is '*truth likeness*' or *verisimilitude* compared to a universal truth. The danger otherwise is confirmation bias. In response, there is Weber's (1964, 1949, 1978) proposition of '*verstehen'* to understand social realities through researcher subjectivity (Adler, 1985; Adler & Adler, 1987; Ferrell & Sander, 1995, p.312; Hollis, 2003, p.147). For criminology, this includes understanding how a crime is defined by society (Ch.2) and crime's aetiology to explain the motivation, emotions, cause, and reason for crime (Katz, 1988). Consequently, researchers with a *verstehen* approach are situated close or within the crime (Ferrell, 1992, 1995; Lyng, 1990; Miller, 1958; Presdee, 1994; Tunnell, 1992; Vigil, 1988; Wright & Decker, 1994), revealing cultural nuances often under the radar of positivist methodologies (Daly & Chesney-Lind, 1988, p.517; Doorewaard, 2014; Caulfield & Wonders, 1994 p.223; Danermark, 2002; Edwards & Sheptycki, 2009, p.379; McGee, 2002; van Dijk, 2010).

The primary limitation here is that one cannot ensure the authenticity of an individual's responses as they portray themselves how they wish to be perceived by the interviewer (dependent on status, ethnicity, gender or even the environment in which the interview takes place) (Goffman, 1959). Nonetheless, these portrayals are unavoidable, and one must believe that there is some truth in humanity.

Some assistance in research development, such as Participatory Action Research (Dupont, 2008; O'Neil, 2010) and triangulation (Section 5.1.6), can assist with this limitation. Additionally, a first-person narrative could provide the researcher with agency to limit relativism (Becker, 1967; Crotty, 1998; Carter & Porter, 2000; Cutcliffe & McKenna, 1999; Davies, 2012; Goffman, 1959; Richards, 2005; Spender, 1980; Webb, 1992) and allow critical realism (House & McDonald, 1998; Sanders, 1995). This is also understood as researcher

reflexivity to address bias in research through continuous interrogation (Bourdieu, 1990; Danermark, 2002; Giddens, 1991; Guba & Lincoln, 1994; Koch & Harrington, 1998; Smith, 1988; Wheatley, 1994). My reflections are shared in Appendix 3 and Chapter 6.

Moreover, interpretivist research may rely on the *rigour of research* based on the dependability, credibility, confirmability, and transferability of the data, as discussed in Appendix 4 for this study (Lincoln & Guba, 1985).

Understanding the social and cultural antecedents of elephant poaching is essential to proposing the mitigation of SIMs through the MRA. Therefore, even in a utopian world where dark figures of crime are non-existent, the interpretivist process would still be the primary choice for this study. Consequently, this necessitates an exploration of contemporary reconceptualisations of the interpretivist stance discussed next.

5.2 Contemporary Reconceptualisations

The mentioned reconceptualisations aim to emancipate subordinate groups while deconstructing traditional research methods (Lather, 2007), making researchers *"accountable for what and how we have the power to see"* (Castor, 1991, p.64). This section extracts the principles that specifically relate to this research and lends to analytical generalisation, where research shows its bearings on a theory or when the same theory is applied to another situation (Fay, 1996, p.72; Yin, 2010, 2013, 2014). The critical questions in making these generalisations are for what purpose and with what power, discussed through the postmodernist, feminist, and decolonised reconceptualisations (Harding, 1987; McGee, 2002; Mishra & Hodge, 1993; Smart, 1977; Smith, 1999).

5.2.1 Postmodernist

The postmodern school of thought derives from critical theory reliant on the interpretivist inductive stance (Haug, 1987; Lather, 2007; Walkerdine, 1990) and is vital to the feminist approach discussed next (Bauman, 2004; Butler, 1992; Gannon & Davies, 2007; Lather, 1991; Lyotard, 1984; Sander, 1995). However, the feminists claim that postmodernism was flawed from the onset as it was established as a masculine and Western legacy with no equal inclusion of the female gender (Bauman, 2004; Hekman, 1990).

A more extreme criticism of postmodernism is that it is ideological, considered dangerous, and a threat to institutions (Kincheloe & McLaren, 2003, p.433). Milder criticisms suggest modernity's problems and that postmodernists make humans the subject rather than the heroic (Foucault, 1966, 1969, 1975, 1998, 2000). Butler (1992, p.17) also highlights the issue with the term 'postmodern', which suggests that modernity is now complete, while Bauman (2004, p.18) argues that postmodernism is solely praised for new age thinking instead of being subjected to scrutiny.

Nevertheless, post-modernity has allowed space for different conceptions, such as feminism, while illuminating caution against the analytical generalisation and relativism of placing the findings from one study into another situation (Haraway, 1988, 1991, 2000; Yin, 2014). However, the post-modernist marker of relativism has been critiqued for not always supporting reconceptualised critiques of traditional methodologies.

It is difficult to make sense of ivory poaching without situating it in modernity and the feminist and decolonising approaches. This research aims to be considerate to associated criticisms of postmodernists to ensure the data derive social truth to the best of its inherent limits.

5.2.2 Feminist

A feminist methodology with a radical outlook is an emerging discourse in social sciences, rooted in the issue that traditional methodologies are heavily patriarchal with gender disregard evidenced by positivists, interpretivists, and pragmatics (Butler, 1992; Fonow & Cook, 1991; Gannon & Davies, 2007; Harding, 1986, 1991; Naffine, 1991, 1997; Smart, 1977; Sumner, 1990a). The feminist dichotomies are robustly grounded on the division in gender in which the female is perceived as a hegemonized object, forgetting that as research objects, females can also be knowers and knowledge creators. It is essential to note that the feminist position is not just concerned solely with gender but rather with all marginalised groups.

The feminist perspective critiques both objectivity and the positivist notion of universal truth as it excludes marginalised or undiscovered voices (Harding, 1991). However, feminism also critiques opposition in sociological theorisation, as seen between positivists and interpretivists. Theories that link knowledge and power are also criticised, as Foucault's notion of normalisation in its hegemonic and masculine perspective does not lend to femininity (Foucault, 1966, 1969, 1975, 2000; Sumner, 1990a, 1990b).

The feminist perspective strives to understand the world, for example. Consequently, the primary principle of feminist research is that research must be present from the bottom-up, through the correct multi-layered filters (such as gender, culture, and ethnicity), including the researcher's understanding in order to eradicate the hierarchy that it critiques (Harding, 1991, 1986). These aspects are catered for by the MRA (Ch.4). Therefore, it is necessary to explore feminist criminology to understand the implications for this research.

5.2.3 Feminist Criminology

The feminist critique was born through civil rights movements (1960-1970) that emphasised the side-lining of women and how women are researched in traditional criminology (Carlen, 1990; Naffine, 1997, 1991; Smart, 1977). This moved the feminist stance in criminology towards empiricism (Harding, 1987, 2004) and standpoint feminism (Smart, 1977). The primary notion is that marginalised groups should share previously disregarded outlooks through reflexivity, creating new knowledge and correcting previous patriarchal truths

(Haraway, 1988, 1991, 2000; Smith, 1988). The data collected, and the claims made afterwards should be devoid of authoritative truth prerogatives. Correspondingly, this is where inclusive methods such as Participatory Action Research (PAR) have evolved with implications in criminology (Dupont, 2008; O'Neil, 2010).

Nonetheless, this approach is also critiqued, mainly and paradoxically similar to the positivist view of universal truth is the criticism of the universal notion of 'woman' that does not fit the realities of all women (Burgess-Proctor, 2006; Heidensohn, 2012; Mohanty, 1988; Potter, 2006). This includes debates on non-binary and transgender rights (Nichols, 2010) and introduces unanswered questions such as who can understand who, and why does knowledge on marginalised groups have less distortion in their perspectives?

Many complications within feminist criminology still need to be debated, such as the hierarchy of victimhood and the notion of an 'ideal victim' (an individual who can identify themselves as a victim with certain traits; without portraying those traits in a powerful manner or a threat to other interests) (Christie, 1986; Spalek, 2006). Even concerning this study, the boundaries of research are mostly blurry. Poachers can be seen as wildlife criminals or victims of colonisation and poverty who have been uniquely disenfranchised and oppressed. But then again, who dictates the oppressed or marginalised? Indeed, even in deciding that, there is a level of power in doing so (Schwobel-Patel, 2015).

In addressing these downfalls, newer insights from the feminist perspective raise awareness of global concerns such as colonialism and the bias of creating knowledge within those paradigms (Kitossa, 2012; Mohanty, 1988; Melber, ND).

5.2.4 Decolonising Research

According to Smith (1999), research is the '*dirtiest* word established through imperialism and linked with insidious 'research', such as eugenics. Researchers have taken or stolen observations, knowledge, identity, resources, and art (from an endless list) and claimed them as their own. The historical link between research and its epistemologies that created and regulated imperialism and colonialism cannot go unheeded.

Decolonising methodologies were first acknowledged through the West's creation of Orientalism, understood through irrational lenses, ignoring integral cultural nuances in exchange for economic and political endeavours (Said, 1978). How the Orient was studied is how it was, and still is, inaccurately portrayed today. Observed otherworldly people were portrayed as irrational and inferior, needing assistance and guidance. There seems little hope of changing the West's inaccurate view of the world when inaccurate literature has shaped their understanding for generations. It may take equally as many generations to change individual perceptions, with the added burden of the limited decolonised perspectives.

Unfortunately, misunderstandings and hegemony of the past, and sometimes the present, often act as the basis of existing policy. The anti-colonialism movement encouraged Western

researchers to account for the local nuances to portray an accurate reality (Marx & Engels, 1972; Mishra, 2013, 2014; Mishra & Hodge, 1993; Said, 1978). However, even when new nuances were identified, such as that by Edward William Lane (1801-1876), there was nowhere to fit the previously missed (but even then, known) nuances into the incorrect existing categorisations.

The Orientalist patriarchy is still prevalent in universities (Melber, ND; Said, 1978; Smith, 1999), and many researchers are unable to recognise the imperialist and colonial influences of their chosen methods or are fearful of challenging the well-established *rules* of academia. Moreover, ulterior motives for research are, perhaps unavoidable, through political and institutional influences and gatekeepers, those that fund it and those that oversee it (publishers, supervisors and researchers) (Smith, 1999).

In contemporary decolonised acknowledgements, non-Western researchers may be less concerned with the oppositions of positivism, interpretivism, and pragmatism, as epistemological advantages may not always be advantageous for non-Western research (Agozino, 2004; Kitossa, 2012; Melber, ND). At the same time, others question the representation of the developing world in existing research (Spivak, 1993) and the imposition of Western findings onto other cultures (Smith, 1999). Consequently, a new wave in academia calls for the decolonisation of methodologies to address the research and power representations instated from imperial and colonial eras to understand a reality closer to *verisimilitude* (Melber, ND; Popper, 1972; Smith, 1999).

Another critical perspective often overlooked is the recognition of history and its influences on the re-evaluation of social science methods and that of criminology in the making of that same history (Bliesemann de Guevara & Kostic, 2017). This is especially relevant to Africa as a whole, the development of knowledge through Western episteme and *"*(t)*he theoretical, conceptual and methodological resources through which Africa is to this day rendered visible and intelligible speak from a place, about that place and in accordance with criteria of plausibility that use that particular place as the normative standard for truth"* (Macamo, 2016, p., 326).

5.2.5 Decolonising Criminology

There needs to be a shift from *"what criminology can do for the struggle and more what the struggle can do for criminology"* (Agozino, 2004, p.352).

The perception of crime in colonies was retrospectively influenced by Orientalism, which regarded the otherworldly locations as lawless and unreliable governance. Criminology was brought to control the chaos in colonies from a coloniser perspective (Agozino, 2004; DuBois, 1992; Kitossa, 2012; Nkrumah, 1968; Said, 1978; Tatum, 1996). In this regard, criminology can be seen by some as an *"imperialist science for the control of others"* (Agozino, 2004, p.344).

Contemporary criminology is lacking in its declaration of its historical impacts and influences on the Third World (Cohen, 1980, 1988, 1993b; see also Agozino, 2004; DuBois, 1992; Mafeje, 1998), with a call to decolonise criminological knowledge (Scraton, 1990). Simultaneously, it must address whether Western criminological knowledge should be exported to post-colonial locations when it was used for much oppression (Cohen, 1988).

In response, the decolonisation of criminology has examined the impact of colonisation on corruption in African states (Young & Turner, 1985), imperialism and the violence in colonies (Pepinsky, 1991), criminology as an imperialist tool to support colonial enterprises (Agozino, 2004; Nkrumah, 1968; Rodney, 1972), discrediting arguments that colonisation was for the development of Africa (Rodney, 1972), policing of marginalised groups (Hall et al., 1978; Shivji, 1982; Sumner, 1990b), and the impact of colonisation on the representation of minorities in the developed world judicial systems (Tatum, 1996). Despite these understandings, there remains a lack of teaching on the development of criminology in post-colonial African countries (Agozino, 2004) and even less on wildlife crime. Especially given that wildlife trade often begins in post-colonial sovereign states (Ch.2), it necessitates acknowledging criminological history and decolonised philosophical reconceptualisations in developing new knowledge within green criminology focused on the IWT.

This section could progress to discuss the beginnings of the labelling theory and contemporary post-structural criminological approaches to highlight the impact on post-colonial marginalised groups. However, the importance of acknowledging these would be primarily to evaluate, in the case of this study, if they impact the MRA as a crime strategy. At this point, I would reiterate what has been said in Chapters 3 and 4, that the MRA's implementation depends on marginalised groups' voices through offender participant interviews.

This research recognises the importance of exploring the reverence and limitations of existing criminology (Agozino, 2004; Shivji, 1982) by focusing on the colonial process in Chapter 2 and accommodates the shift into understanding the history and renewing relationships with marginalised groups by transparently addressing the research processes, decolonised reconceptualisations and counter-colonial thought, and disseminating research benefits for more meaningful outcomes for a community (Marks, 2002; Shivji, 1982; Smith, 1999).

5.2.6 Concluding the Philosophical Standing of this Study: Reconceptualisations, Reflexivity and First-Person Narrative

I chose this research based on my upbringing in Tanzania and my academic and career journey that led me to propose this topic for a PhD. Due to the intertwining of my upbringing, the research topic, and the research location, I cannot fully address this study clear of all personal biases. That said, even if someone else conducted this study, they too would have their biases.

Initially, when designing the PhD proposal, I took a pragmatic approach to explore all methods and tools to address elephant ivory poaching. This introduced me to theft prevention

strategies for rural wildlife crime, shifting the philosophical standing from pragmatic to interpretivist. Thereby, I situate this study and my role as the researcher in a critical realist postmodernist interpretivist qualitative approach, with the more recent feminist and decolonised reconsiderations of traditional criminological fieldwork (Adler & Adler, 1987; Caulfield & Wonders, 1994; Clough, 1992; Daly & Chesney-Lind, 1988; Gelsthorpe, 1990; Harding, 1991).

I rely on qualitative research to assist in the exploration of a previously under-explored area of Tanzanian SIMs, which may allow a more fitting quantitative understanding to be derived (Arrigo & Williams*,* 2006; Miles & Huberman, 1994; Saunders, Lewis & Thornhill, 2016; Yin, 2014). This research understands directly from the experiences described by heterogeneous groups using semi-structured interviews guided by the MRA's ERASOR (Section 4.3.3). The research is not independent of researchers' interpretations, in essence creating a double interpretation first by the participants of their reality and then by the researcher of the participants' reality (Manning, 1999; Wilson, 2010).

This approach may simultaneously allow criminology to gain from the researcher's experiences in fieldwork through conducting what is assumed to be high-risk rural research in Tanzania (Polsky, 1969, p.141). I believe this research may shed some light on the often-ambiguous nature of criminological research (Sanders, 1995).

There will be commonalities and differences between participants within a group, between participant groups, and between the participant and myself. Such differences cannot be seen as a division (as done by the Orientalists) between the researched and the researcher, but as a co-existence and empathetic learning for both to create knowledge on Tanzanian SIMs to *verisimilitude* (Popper, 1986, 1972). What I am trying to recognise here is the pressure on researchers to conform to academic guidelines (which, if not followed, then the fear of being ruled out as unreliable). Reading through the feminist and decolonised approaches gave me the confidence and the grounding to explore and explain all the internal social nuances I understood and believed to understand.

Therefore, research recognises the implications of *subjectivity* (Bottoms, 2000) and relies on critical reflexivity, necessitating an almost autobiographical approach as addressed in Section 5.2 (Adler & Adler, 1987; Gelsthorpe, 1990). This is in addition to transparency of data collection, including, for example, ethical and logistical considerations, as shared in Chapter 6 and Appendix 4 (Fine, 1993). To do so, parts of this research are expressed in first person to allow *me* to convey *my* experiences with participants and their responses to *my* questions and *my* interpretations of those responses as data analysis. In conjunction with an avenue through which I can fully express the impact of *my* personal biases on this research. I have made candid attempts to pull out the threads of my biases to ensure transparency of the impact of my social trajectory on this study (Ch.6; Appendix 3 & 4).

5.3 Methodological Framework – Thematic Analysis

Qualitative studies can be found throughout prominent and ‘classic’ criminology studies conducted with active criminals (not in prison). Some studies draw close comparisons to this research (Fagan & Wilkinson, 1998a, 1998b; Jacobs, 1993, 1996a, 1996b; Sutton, 1998; Wright & Decker, 1994, 1997). As such, this section explores the justifications for *Thematic analysis* (TA), the chosen methodological framework that best aligns with this study's philosophical positioning.

Grounded Theory (GT) is the founding inductive methodology that influences other qualitative methods (Glaser & Strauss, 1967). It was considered but not chosen due to its following limitations:

- GT does not accommodate a hybrid approach. This study has a solid argument for a deductive and inductive hybrid dependent on the existing framework of the MRA and catering to cultural paradigms and decolonisation agendas surrounding SIMs.
- GT has limited accommodation of preconceived knowledge, whereas this study acknowledges that researcher and participant biases are unavoidable and integral to this study.
- GT requires word-by-word analysis to lower data ‘noise’ (Straus & Corbin, 1990). This research focuses on context and vernacular as responses were translated from Swahili to English.
- GT’s requisite for conformity within samples could not be met as poachers may operate in different PAs, using different *MO*.

Narrative analysis, although a robust option, was not chosen, as this study could not guarantee multiple meetings with participants; deviate from the explicit focus on the MRA, which requires some structure in interviews (Bruner, 1990; Franzosi, 1998; Denzin, 1989, 1970; Holloway & Freshwater, 2007; Polkinghorne, 2007; McCracken, 1988; Riessman, 1993).

Thematic analysis (TA) was considered for this study as it *“can be used to gain access to local knowledge of the field in order to develop theoretical concepts and explanations that cover phenomena relevant for the research domain”* (Kelle, 2006, p.309). It allows the researcher to derive themes from the interview data while accommodating numerous ontological and epistemological positionings fitting to the study (Miles & Huberman, 1994). However, as in every case, limitations are almost always present and must be explored:

- Some question if TA is merely a content analysis tool (Boyatzis, 1998; Ryan & Bernard, 2000). However, further exploration demonstrated that TA *“is a poorly demarcated and rarely-acknowledged, yet widely-used qualitative analytic method,”* lending to its recent acknowledgement as a method for qualitative knowledge creation (Braun & Clarke, 2006, p.77; see also Boyatzis, 1998).
- Others question if TA is independent of its positivist and GT foundations (Chamberlain, 2013; Glaser & Strauss, 1967; Willig, 2013). Braun and Clarke (2006) highlight that TA

is based on flexible structure supported by transparency and reflexivity, whereas GT focuses on precise processes and actions (see also Koch & Harrington, 1998).

TA was considered and chosen for this study primarily as it caters for a hybrid approach accommodating the MRA and new data that may not be catered for the MRA. Moreover, TA allows the researchers to construct data analysis suited to the research question, calling for researcher reflections and transparency. Accordingly, the following section candidly conceptualises and justifies the chosen design of TA within which this research will be analysed, following the guidelines provided by Braun & Clarke (2006).

Braun and Clarke (2006) begin by addressing the theme and typology before directing the discussion to four major decisions before adopting the TA, including:

- What counts as a theme?
- A rich description of the dataset or one particular account?
- Inductive or theoretical thematic analysis?
- Semantic or latent themes?

This section presents the two considerations and the four decisions made to fit this research.

5.3.1 Themes and Typologies

Themes bring together *"fragments of ideas…which often are meaningless when viewed alone"*, but together form a Central Organising Concept (COC) (Braun & Clarke, 2013; Clarke, 2017; Leininger, 1985, p.60; Terry & Braun, 2016). However, more instances of mention in the dataset do not make the theme more integral to the study (Braun & Clarke, 2006). If it did, a quantitative methodology would arguably be better suited.

A theme can be conceptualised as induction or deduction (output or input). Although deductive themes have been criticised as unsuitable for theory development (Strauss & Corbin, 1990), they do allow for broad overarching themes to be decided before data collection, dependent on interview design (Miles & Huberman, 1994). However, using domain summaries to identify a theme (in which the meanings in the data are not shared) renders that theme underdeveloped (Clarke, 2017; Braun & Clarke, 2016, 2019).

This research relies on a hybrid of deductive and inductive themes relating to the MRA, which provides broadly presented inputs but also caters for outputs not addressed by the inputs (Section 4.3.3). Fereday and Muir-Cochrane (2006) share the arguments for a hybrid approach for rigorous theoretical TA and lend to the next question on typologies.

The three qualitative typologies in TA are categorised as small "q" related to the positivist and the coding reliability typology, or big "Q" which epitomises the interpretivist and the reflexive typology (Braun & Clarke, 2006; 2019; Braun, Clarke & Weate, 2016; see also Kidder & Fine, 1987). While the codebook typology falls between "q" and "Q". It is vital to note that this does

not impact the qualitative nature of the data and instead challenges the notion that quantitative is positivist and qualitative is interpretivist.

Coding reliability (Boyatzis, 1998; Guest, MacQueens & Namey, 2012; Joffe, 2012) and codebook (Brooks et al., 2015; Gale et al., 2013; King, 2004, 2012; Miles & Huberman, 1994; Nadin & Cassell, 2014; Ritchie & Lewis, 2003; Ritchie & Spencer, 1994; Smith & Frith, 2011), were not chosen for this study as there is no available codebook for this research; multiple coders could not be trusted to meet the ethical commitment of this study (Appendix 4); and the small *q* prevalent in both hinders the philosophical orientation at the core of this research.

The reflexive typology was chosen for this study as it allows: flexibility as codes can be renamed and regrouped as the analysis develops; the philosophical orientation of this research; the researcher to remain at the core of the methodology while they are expected to remain vigilant of their decisions; researcher reflexivity (Koch & Harrington, 1998); and the hybrid approach (Fereday & Muir-Cochrane, 2006). It is essential to acknowledge that this approach has limitations analogous to qualitative research (Section 5.1.7), which can be addressed by data quality and rigour (Lincoln & Guba, 1985; Koch & Harrington, 1998) discussed in the subsequent chapter.

Having outlined the hybrid approach to themes and the reflexive typology, the following section explores the four crucial decisions of TA.

5.3.2 Decisions One to Four

What counts as a theme?

Using a hybrid system for this research, the creation of themes would be determined by the theme's ability to answer the research question in four distinct areas. Firstly, if they informed the potential of using the MRA for SIMs through any overlaps between SIMs and SGMs and their chains of transactions. Secondly, if they implied any underlying social contexts for SIMs. Thirdly, if the data recommend additions to the MRA specifically for SIMs (such as new typologies of markets) and finally, the relationship between these themes.

The themes will be determined not by the number of mentions in the data (Meehan, Vermeer & Windsor, 2000, p.372) but even by a single mention dependent on the importance of that information to the research, as logically determined by the researcher (Braun & Clarke, 2006; Braun, Gavery & McPhillips, 2003, p.249). This is crucial as one poacher's *MO* could differ from another's. Nevertheless, that information could provide critical data to inform the MRA. The philosophical underpinnings, the MRA's framework, reflections, and the qualitative nature of this study go together with this approach to theme development.

A rich description or a detailed account?

The inductive stance in the hybrid model plays a crucial role in this study due to limited existing data predicting the participants' responses. Since this study explores an under-

researched area, I decided it would be a significant loss of opportunity if the scope of the analysis did not include the entire dataset. Thus, the whole dataset will be considered. This is opposed to the other option of a detailed account of a single (or a few) aspect (s) of the data (Braun & Clarke, 2006).

Inductive or theoretical thematic analysis?

Although this study adopts the hybrid system in which the MRA influences the themes, the MRA does not group the data into preconceived themes or provide a codebook to follow. Therefore, this study is predominately inductive while acknowledging that MRA will, to some extent, influence the information derived from this research as it shapes the semi-structured interview schedules.

Semantic or latent themes?

Traditionally, TA only allows for either the semantic (the overt and surface meanings of the data (Patton, 1990) or the latent (underlying ideas and assumptions, requiring a more interpretative exploration of data) themes (Boyatzis, 1998; Braun & Clarke, 2006). The semantic will inform the MO of SIMs to inform the MRA, while the latent explores the underlying reasons for poaching to inform strategies under the MRA. However, a hybrid approach necessitates both, and the MRA interview schedules are designed to capture the surface and the underlying understanding of participants' responses.

Both the MRA and the chosen thematic framework complement each other. The four decisions discussed here, the selected understanding of a theme, and the choice of reflexive TA outline the framework for the subsequent data analysis. This framework safeguards the exploration of factors of ivory poaching that are not covered within the existing MRA or with the possibility of adding to the existing MRA.

5.4 Concluding Remarks on the Methodology

There is always the challenge of addressing how valid the findings are and how the operationalisation of the methodology (i.e., the methods) has allowed the researcher to address the aims and objectives. It was essential to ensure that the methodology is transparent and robust to ensure that this research's findings are acceptable for academia and the proposed practitioner plans presented in Appendix 5. In summary, this study is grounded in the interpretivist qualitative stance with the post-modernist, feminist and decolonisation reconceptualisations. It uses the thematic analysis relying on an inductive hybrid system for theme conceptualisation of a thick data description.

Although the methodological framework is transparently addressed, there is still some question concerning the ethical considerations and the safeguarding against the limitations of this chosen framework, especially regarding qualitative data. Both are addressed in the next chapter.

Chapter 6: Methods- Data Collection and Analysis

The research design (May, 1991; Meuser & Löschper, 2002; Tewksbury, 2009; Wincup, 2017) of sensitive studies poses several significant challenges as reflexive presented in this chapter concerning: researcher experiences; gaining access to research in Tanzania; pilot studies; recruiting participants and translating and transcribing the data for data analysis. To the best of my capabilities, this chapter conveys a truthful representation of the realities of field research to allow the readers' judgment on this study's integrity.

6.1 Research Design and Pilot

Interview schedules (Appendix 1) were guided by ERASOR (Ch.4) and tailored by the literature review on historical ivory markets (Ch.2). Owing to this, interview questions were open-ended (Bauman et al., 2002; Bruner, 1990; Kvale, 1983, 1996a; Longhurst, 2003; Nunkoosing, 2005; Sarbin, 1986; Silverman, 2000), and the researcher actively processed the responses (Bauman et al., 2002; Gill et al., 2008; Willig, 2001; Weber, 1949).

A pilot study was needed to ensure Swahili interviews replicated the precise meanings of questions and identify potential research design problems (Caulfield & Hill, 2014; Gill et al., 2008; Malmqvist et al., 2019; Salkind, 2010). Due to the challenges in participant recruitment inherent to this study, a pilot study was not conducted with potential participants (Malmqvist et al., 2019).

Instead, the pilot encompassed the researcher's support team to inform the Swahili translations of interview schedules, consent forms and the worded protocol. The feedback redesigned: language that could be misconstrued in rural dialect; incorporated cultural formalities such as respectful language when addressing elders; and allowed researcher familiarity with questions, consent, and protocol to allow a more natural flow during interviews.

Additionally, the pilot team advised on the dress code, which is of importance for a female researcher in the field (see also Lisiak, 2015). Some suggested a *kanga* (worn around the waist) for "*more rural villages*", while others perceived that as *"trying too hard"*. More than adhering to the cultural norm, the *kanga* was chosen for busy markets and rural bars based on my past experiences and influenced by my gender and body shape. For the remainder, I chose safari and travel clothing.

The modified pilot study provided integral outcomes akin to a strict pilot, leading to modified approaches to research Tanzanian SIMs. The primary limitation was the partial practice of follow-up questions due to pilot participants having limited to no experience in SIMs. However, Chapter 2 provided foundational information to follow up confidently and prompt responses.

6.2 Working with Gatekeepers: Access to Research in Tanzania

> *"Kila jambo na wakati wake."* – Everything has its own opportune time.
> Swahili Proverb

Gatekeepers (organisations, individuals, or groups) can limit access to locations, data, or participants due to fears of misrepresentation (Brewer, 1993; Broadhead & Rist, 1975-1976; De Laine, 2000; Miller & Bell, 2002; Singh & Wassenaar, 2016). Therefore, access is dependent on trust-based relations (Crowhurst & Kennedy-Macfoy, 2013; Harrison, MacGibbon & Morton, 2001; Sixsmith, Boneham & Goldring, 2003), as formed with four central authorities: COSTECH (Tanzanian Commission for Science and Technology), TAWIRI (Tanzania Wildlife Research Institute), TANAPA (Tanzania National Parks Authority) and the Ministry of Home Affairs (Appendix 2 for letters of access).

The decolonised methodology was integral in convincing agencies of this study's value and integrity. Nonetheless, this study faced many institutional challenges and dedicated 11 months to navigating research clearance with various gatekeepers (Figure 12), as detailed in Appendix 2.

Authorities were convinced by emphasising that this study: does not simply blame current governance; incorporates real-world perspectives and provides locally tailored solutions; accepts and accommodates cultural nuances (such as the potential for corruption); and approaches with decolonised methodologies.

It must be noted that participants are gatekeepers in their own right, controlling their involvement and the breadth, depth, and accuracy of the information provided (Adler & Adler, 1987; Harrison, MacGibbon & Morton, 2001). The following section outlines how trusting rapport, physical (contact with a participant or group) and social (acceptance by participant or group), were established (Cassell, 1988).

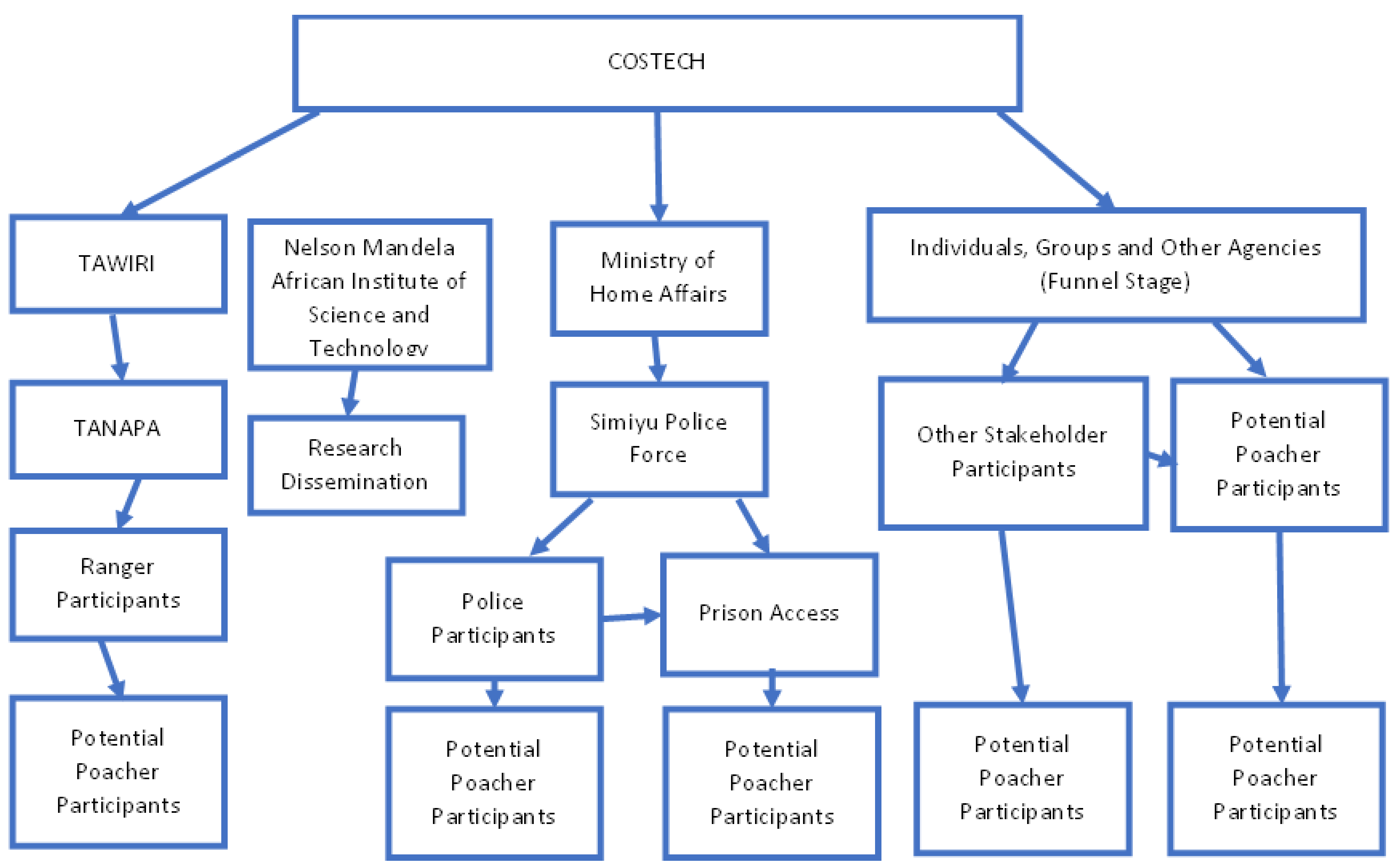

Figure 12: *Interconnected gatekeeper access*

6.3 Participant Recruitment

Recruitment began in August 2018. By May 2019, I completed 67 in-depth interviews with:

- 33 Ranger Participants (RPs) in Ruaha (n=13) and Serengeti (n=20).
- Seven Other Stakeholder Participants (OSPs): Professional hunter, freelance anti-poaching adviser, two public prosecutors, village chief, tour guide and lodge manager.
- Six Police Participants (PPs): Including one NTAP.
- 21 Potential Poacher Participants (PPPs), including the ten Alleged Poacher Participants (APPs) interviewed in prison.

The data were collected over five phases, determined by the funnel and snowball approach discussed next (Figure 13), including interview location descriptions, shared where possible without impacting participant anonymity (Griffee, 2005).

6.3.1 Phase 1: The Funnel Approach and the Snowball Effect

The snowball effect is used to obtain respondents *"where some degree of trust is required to initiate contact",* as with SIMs (Atkinson & Flint, 2001; see also Biernacki & Waldorf, 1981, p.143; Goodman, 1961; Noy, 2008; Sudman, 1976; Sutherland & Cressey, 1970; Wright et al., 1992). This process requires planning and reliance on the researcher to decide which participants provide essential insights where others do not (Abrams, 2010; Cohen & Arieli, 2011).

With this in mind, I adopted the *Extended Innovation Funnel* (Figure 13), which focused on shifting concept-to-reality (Hobcraft, 2011; see also Martin, 2010; University of Cambridge, 2016). I cast a wide net within my network to include those connected to elephants or ivory (e.g., professional hunters and wildlife crime prosecutors). Thereafter, selectively interviewing those who met the study's aims (Ch.1), poachers being at the core and the most difficult to access. Funnel interviews with relevant insights are included as OSP and meet the ERASOR requirement for information gathered from multiple sources beyond official information (Section 4.3).

Some may contest a distinction between snowball and funnel, but I experienced that the funnel is broad and on the outskirts of the core data. In comparison, snowball referrals were analogous to a specific group of individuals. For instance, professional hunters referred other hunters rather than poachers or rangers. There were, of course, promises of external referrals, including elephant poachers' and private anti-poaching units, although these did not materialise, perhaps due to perceived distrust.

With limited time on clearance permits (Appendix 2), a more proactive approach targeting the core sample was adopted while funnel channels remained open. I decidedly proceeded with ranger interviews despite the potential effect on PPP recruitment, who could perceive me as collaborating with enforcement for their arrest, as detailed next.

6.3.2 Phase 2: Serengeti National Park

Introducing oneself to gatekeepers before research is vital in Tanzania (see also Johl & Renganathan, 2010; Herd & Mathers, 1995; Willems, 2001). I visited the Chief Park Warden to inform them of my arrival. As I later discovered, most RPs would inquire if I had met the warden before agreeing to participate. Keeping in mind the logistics in PAs, where the warden's office may be a six-hour drive, it is best to arrange this formality first.

Through Mr S. and with a degree of 'snowballing', 19 interviews were secured. Most interviews were conducted under trees, in my car, or, when available, at rangers' offices or staircases when offices were occupied (Griffee, 2005). Staying at two different Asanja Africa accommodations allowed me to cover more ranger posts.

The clearance permits, the Warden's approval and the legitimacy of being accompanied by Mr S., a fellow ranger himself, convinced RPs to participate and refer rangers with undercover experience. The latter were met at specified locations and set times to keep their cover intact. A different snowball also manifested as rangers volunteered to participate upon seeing interviews conducted with their colleagues.

In one instance, I encountered rangers exasperated at the proposal of an interview. Irrespective of attempts to convince them by myself and Mr S., they were unwilling to participate, speculatively, because of their perception of: me as a researcher unable to understand their experiences; my age, gender, race, economic status; or my intentions with their responses. Alternatively, possibly owing to fear of participation due to recent crackdowns on misconduct by the park and government officials or avoiding *"strangers simply to keep from being ridiculed, lectured, or patronized"* (Berk & Adam, 1970, p.104).

A widespread belief and one that I frequently encountered is *"that this type of research is impractical. In particular, how is one to locate active criminals and obtain their cooperation?"* (Wright et al., 1992, p.149), as summarised by an RPs epilogue:

> *"The poacher? [L: Yes]. As in, to ask him questions? [L: Yes. These same questions]. He cannot! He cannot tell you because, firstly, he cannot trust you. He cannot speak to you. [L: It may take time?]. He cannot agree!... He knows you are investigating him, and you want him locked up…even if it were just about bushmeat, they would not accept you."* RP

At this juncture, I decided to approach village chiefs (Mbuba & Mugambi, 2011) directly following the advice that *"[a]ll we really have to do is get out of our offices and onto the street. The data are there; the problem is that too often [researchers] are not"* (Chambliss, 1975, p.39, as seen in Wright et al., 1992, p.149).

One chief was convinced of this research's integrity and introduced me to a recently released elephant poacher. Upon arriving at the PPP's house accompanied by the chief, we were informed he was at a local bar. The chief speculated that the PPP was hiding and observing us

and convinced the PPP over the phone, further highlighting the importance of a trusted advocate.

The chief insisted that he and Mr S. accompany the interview to translate the PPP's Swahili dialect. This suggested that the participant may be from the border regions of Tanzania (Ch.7 & 8). I agreed for the PPP's comfort and the possibility that the interview might not proceed otherwise. The participant took this opportunity to argue his wrongful arrest and admit to bushmeat poaching and his clan's worship of elephant ivory (Jøssang, 2014; Shetler, 2007 – Machcaba tusks worshipped by the Ikoma group). A similar outcome was faced through another village chief's referral, with the PPP denying their involvement. Both interviews are included in the PPP sample due to critical insights.

Despite broken promises of referral and participant denials, Phase 2 successfully secured RP interviews, and hope was maintained for the possibility of interviewing elephant poachers.

A total of 1,893 kilometres was covered, costing 3,592 USD.

During phase two, I was made aware of an untapped funnel source in my network, consisting of tour guides. As shared in later phases, these personal networks' strength, trust, and longevity were crucial in securing PPP interviews.

These periods of liminality across all phases allowed for: follow-up with funnel contacts, which was crucial given the limited phone network during data collection; essential car maintenance (corrugated roads take a severe toll on any vehicle); restocking of non-perishable food and water; checking electronics; printing more copies of letters and permits often kept by gatekeepers and participants; logging researcher reflections; and securing interview recordings (Appendix 4).

6.3.3 Phase 3: Ruaha National Park

Research in Ruaha posed several logistical challenges, as a new driver would have to be instructed on arrival with risks for participant anonymity. Instead, I opted for the two-day road travel with Mr K., during which Mr S. came forward with a lead to a PPP whom we would meet on return.

I was introduced to the Warden and head of research who assigned RPs. Unfortunately, it became clear that the assigned RPs did not have experience apprehending elephant poachers or information on SIMs. After discussing the issue with the office, Mr S. was permitted to facilitate RP recruitment, resulting in 13 RP interviews conducted in similar locations to RP interviews in Phase 2. RPs assisted with snowball introductions to PPPs and informants. Unfortunately, all leads could not be followed due to logistical and funding limitations.

Phone numbers provided by RPs necessitated continuous detours to mobile network hotspots despite knowing that PPPs may not answer phone numbers given to rangers. As one PPP tried to explain why I could not reach them:

> *"…people know I use it* [mobile phone]*…. Then you have some* [alcohol]*, and you forget, now to whom did I give my phone to?"* PPP

In another instance, as agreed over the phone, I arrived at a PPP's home to find them missing, possibly due to fear of arrest and observing the situation from a distance akin to the PPP outcome in Phase 2. Talking to the participant's family, I explained my intentions and assured them of this research-based visit upon which the PPP was notified. I was welcomed into their hut, and the interview proceeded under a mango tree.

On the return journey, I met the PPP recruited by Mr S. however, Mr S. had to leave part-way through the interview, resulting in trust-based challenges impacting the quality of the data collected. Nonetheless, valuable insights were shared and included in this study.

A total distance of 2,463 kilometres was covered with a cost of 2,138 USD.

Within the liminality of phases three and four, a follow-up phone call with a previous participant resulted in a PPP interview conducted at a public location accompanied by the introducer. This was helped somewhat by a power dynamic between the two, resulting in competitive knowledge sharing.

6.3.4 Phase 4: Simiyu Region

Upon arrival, I met with the NRO to brief them on the data collection plan and introduced myself to the regional and district offices and police stations. I secured six PP interviews, including wildlife crime forensic investigators and an NTAP officer, and one OSP interview with a public prosecutor of wildlife crime. Interviews were conducted in cafes and police bars.

The NRO successfully secured a meeting with two PPPs, who were unreachable on the day of the meeting, possibly after observing my interactions with police. Nevertheless, I decided to attend the previously agreed-upon location, assuming the PPPs would observe us from a distance. Two and half hours later, the participants were a no-show, and I decided to travel back before nightfall.

I also travelled to an undisclosed village to meet with a referred village chief known for their involvement in SIMs. The participant denied involvement in SIMs but provided valuable insights as collaborators with enforcement in apprehending poachers. They are included as an OSP, while this interaction demonstrates the value of engaging with village chiefs.

Through the NRO, Mr A., regional offices, and the letter of research clearance, I secured access to ten APPs in prison. On arrival, I was instructed on prison rules and cautioned about catcalling and comments based on my gender and ethnicity – expected in most prisons (Bandyopadhyay, 2006; Gomes & Granja, 2021; Lucic-Catic, 2011; Liebling, 1999; Wakai et al., 2009). I was also advised that participants' cases were ongoing (some of whom were previous wildlife enforcement) with implications on data collection and how much information would be shared. There is undoubtedly a juxtaposition here when compared to the procedures of

Western prisons (Cunha, 2014; Gomes & Granja, 2021; Gosting, Vanchieri & Pope, 2007; Wacquant, 2002), but the reality of international research cannot be concisely compartmentalised into a non-universal criterion (Ch.5).

The prison warden decided on the following general procedure:

- The office would recruit participants.
- I would purchase soft drinks from the prison canteen for participants.
- Interviews would take place in an office with staff present.
- Participants would sit on the floor during interviews.
- A correctional officer would be situated outside to instruct the next participant.
- No recording devices were permitted.

Interviews conducted outside of prison were more in-depth than those in prison, as most APPs used this opportunity to defend against their allegations, a common outcome for prison research (Jewkes & Wright, 2016). Ex-enforcement, now inmates, chose to answer questions based on their experience in enforcement.

A total of 744 kilometres was covered for this phase, costing 869 USD. After concluding this phase, I returned to the UK and continued my routine, remaining in contact with funnel and snowball networks while consolidating audio files. During this liminality, I heard back from my previously promised leads to several PPPs:

> *"If I am there as in there is nothing to be afraid, you hear, there is nothing to be afraid of because they know me as a person…the steering poacher, we speak with them…they will be very happy."* PPP

I fully understood the importance of following through with this lead with the benefits of a trusted advocate. I committed to covering the advocate's costs for the time taken off work, travel, and food to ensure they remain present when interviewing their leads. In response, the advocate proposed that participants would require monetary payment. We agreed on a total sum and a date for Phase 5, while extra funds were arranged to travel back to Tanzania.

6.3.5 Phase 5: Snowball Leads for PPPs and Concluding on Participant Recruitment

As the departure date approached, one of the introducers began to lose contact. Despite my reservations and having already committed much to this process, I immediately offered upfront payment. Fortunately, after an hour of waiting, the introducers arrived, and we proceeded to an undisclosed indoor location. I collectively informed the group of PPPs on the research, intentions, worded protocol, and consent requirements. Amongst the group, they decided to interview in pairs, and the introducers took turns to be present during the interview, intervening and vouching for me when they felt the PPPs shying away in their responses. This highlights the difficulty in building trust even in the presence of a trusted

advocate and perhaps suggests a level of distrust between associates operating in SIMs. We concluded six interviews with monetary compensation, as promised. A total of 563 kilometres was covered, costing 640 USD.

Due to the recruitment uncertainty, this study explored all possible routes, resulting in interviews with unsuccessful (previously arrested) and successful (active) poachers. Figure 13 depicts the critical shift from funnel (outskirts or concept) to snowball (core or reality) referrals – a better-suited representation for this study than straight-line infographics (chain referral trees (Wright et al., 1992, p.152), which in reality, are never straight. More importantly, I was cautious that if one participant were identified on a referral tree, they could be targeted to reveal others referred by them for this study.

I covered an estimated 7,060 kilometres in road travel alone, equating to driving eight times between London and Aberdeen, not considering differences in road conditions. The total costs of this study are estimated at 14,800 USD, which is significantly lower than those that might be experienced by non-Tanzanian researchers, as I relied on staff support networks already on the payroll, personal networks, and discounts from friends and relatives.

The implications of sharing this information are to help researchers acknowledge the commitment demanded by the logistics of the vastness of Tanzania and the hidden costs and flexible funds needed to meet the demands of field realities and unforeseeable events. The distance, time and cost must be endured even if potentially, only to be met by broken promises and no-show participants.

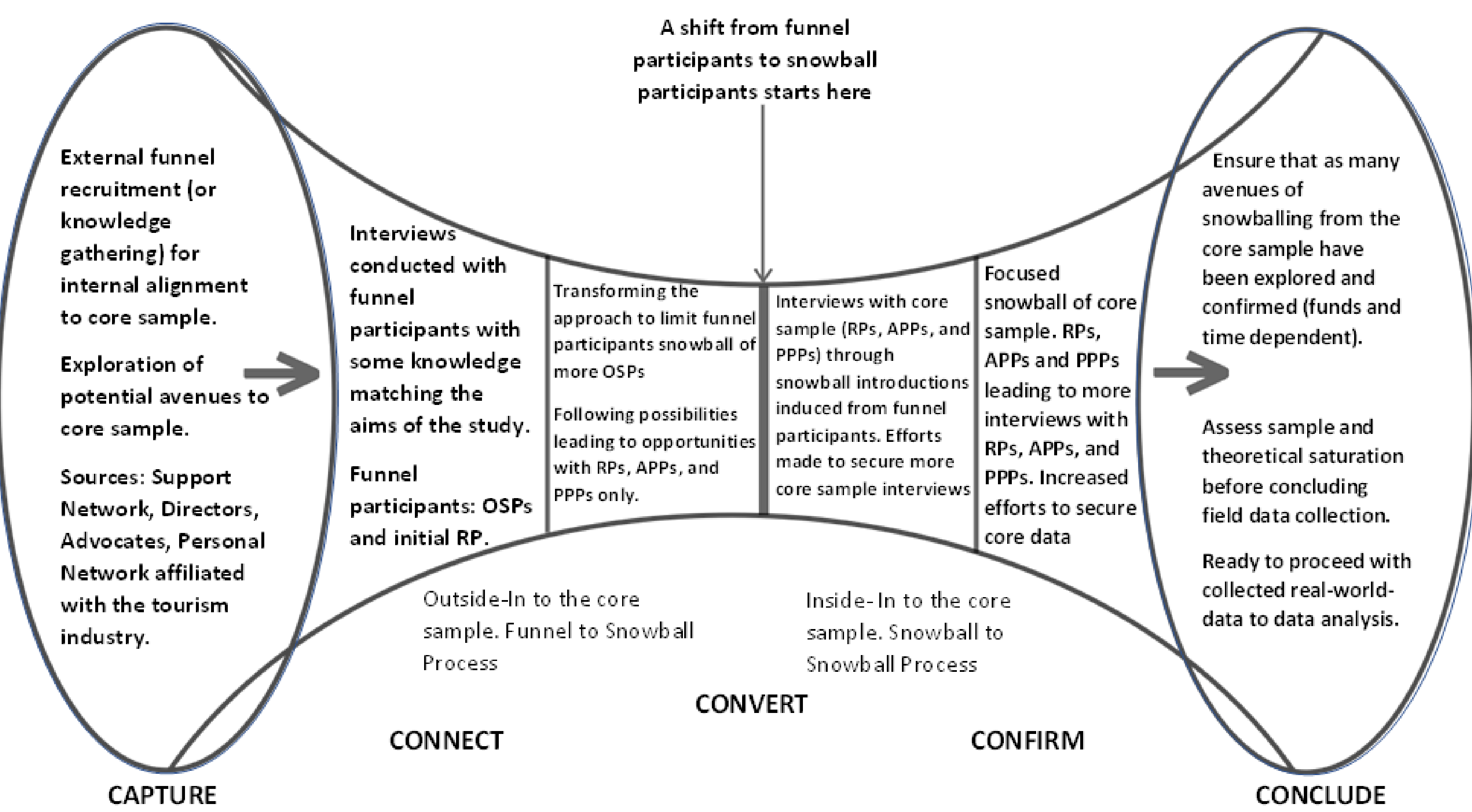

Figure 13: *The Extended Innovation Funnel for participant recruitment*

6.4 Field Experiences

The interview process was guided by Sutton, Schneider, and Hetherington (2001, pp.14-15) and the ethical considerations of this study (Appendix 4). Participants did not view questions in advance of the interview. Direct quotes are not labelled using participants' unique codes. I was vigilant that specific coding would allow readers to identify a single voice or event – possibly compromising participant anonymity given the niche environment in which poachers and enforcement operate (Section 6.4.3).

Interview schedules were well received and developed over data collection as interviewees suggested additional questions shared in Appendix 1 (see also Kvale, 1996a). Suggestions that deviated from the study's aims were not incorporated, often involving bushmeat poaching. This outcome highlights over-researched topics in these areas as interviewees came prepared to answer questions they believed would be proposed based on past experiences and information sharing amongst colleagues.

The participants' responsive engagement during interviews was noted during data collection, which resulted in them wanting to make the research their project (Guillemin & Gillam, 2004, p.271). In two instances, participants wanted to assist the project to the final stages and influence dissemination. However, I could not make these commitments, not least for the potential violations of participant anonymity and safety (Appendix 4).

6.4.1 Interviewer-Interviewee Rapport

Trust and rapport are two sides of the same coin, and parachuting into any given situation requires time to establish both (Atkinson & Flint, 2001; Berg, 1988; Faugier & Sergeant, 1977; Miller, 1952; Oakley, 1981, 2016). One cannot overcome the validity of one's characteristics (ethnicity, gender, etc.) interpreted by another without increasing or decreasing efforts to establish relations (Luff, 1999; Mun Wong, 1998; Phoenix, 1994).

Considering the broader overlaps between participants and myself (an understanding of Tanzanian locations, cultures, and language), a network that vouched for the trustworthiness of this research and myself and assisted by interview protocols (neutral body language and supportive sounds) (Gill et al., 2008), I was able to establish some rapport.

Interactions with PPPs in phases three and five evidence rapport through invitations to visit again. Such rapport was possible as participants were interviewed in locations familiar to them, and they could control the situation and perceive the researcher as a guest (Gill et al., 2008; Kvale, 1996a). Rapport with enforcement was straightforward, especially in the company of Mr S. – I continue to maintain contact with some participants, further evidencing rapport.

Even so, there were no insignificant obstacles in connecting with some participants. With APPs, rapport was almost non-existent, possibly due to the following:

- Environments that may *"take on a number of characteristics of a Hobbesian war of all against all"*, making them *"extremely suspicious of anyone"* (Berk & Adam, 1970 p.104; see also Grimwade, 1999).
- Attendance for soft drinks and curiosity about this uncommon event (Bosworth et al., 2005; Liebling, 1999).
- Perceiving the researcher as unworthy of truly understanding their experiences (influenced by gender, ethnicity, or lack of experience in the criminal sector) (Swidler, 1986).

Of note with enforcement are my encounters shared in Section 6.3 and my interview with a female RP. I remain unable to tease out explicitly which factors influenced these situations. Despite many efforts, I was unable to establish rapport with the female RP, further evidencing that Devault's (1990; see also Finch, 1984) understanding of women-to-women rapport is misleading (Luff, 1999, p.693).

Unexpectedly, it was difficult to bond with professional hunters. I was informed that the reluctance was due to the government's increased restrictions on and apprehension of professional hunters. This impacted the realisation of referrals and resulted in apologetic cancellations.

It was equally unexpectedly challenging to gain the trust of Western-run NGOs, where I experienced a severe lack of transparency and willingness to participate in this research. This may be due to the secrecy necessitated by the competitive structure of securing donor funds through labelling their approaches as innovative and unique. There is a greater need to call NGOs and private entities to adopt a decolonised perspective of the environment in which they operate by including local efforts, which may be better suited to the overall endeavour (Smith, 1999).

In concluding the data collection, an OSP shared that some rangers were discussing an *Indian girl and her changamoto* (challenging) *questions* and that some were encouraged to learn from apprehended poachers on the processes of SIMs. Speculatively, PPPs may also share a similar experience to RPs in hindsight of their responses and understanding of SIMs. Similarly, Mr K. shared that he was approached by a participant when driving the *gari ya utafiti* (research car), who inquired about the *Indian sister* and her research progress.

6.4.2 Power Dynamic

Affiliated with building rapport is the multifaceted power dynamic of interviewer-interviewee, which is in most cases difficult to assess (Anyan, 2013; Elwood & Martin, 2000; Lukes, 1974; Opie, 1992; Wang, 2006), with limited insights concerning female researchers (Aendell, 1997; Lee, 1995; Lisiak, 2015; Palmer & Thompson, 2010; Pawelz, 2018), and possibly inimitable in prison settings (Elliott, 2005; Gomes & Granja, 2021; Liebling, 2014). Here, I share some of the prerogatives and disfranchisement I perceive to have faced.

Participants decided on interview locations (except APPs; see also Section 6.3), coupled with open-ended questions, both allowing power to favour participants (Elwood & Martin, 2000) and challenge any preconceptions of a formal interrogation, as one PPP best explains:

> *"I think you've appreciated in how I have explained widely, you know? I don't just answer a little bit of what you ask, but I can also expand my answer then from my expansion…you can also get more questions from that…."*

The participant expresses agency as a mitigator of unequal power dynamics (Bailey, Barnard & Kemp, 2019; Cahill, 2007; Lewin, 1946). Although this study is not PAR, it overlaps through collaborative endeavours with participants, suggesting that decolonised research is, at the very least, an advocate of PAR, with scope for PAR in a longer-term MRA.

In prison-based interviews, participants seated on the floor may have impacted power dynamics (Section 6.3). To balance this, I considered but refrained from sitting on the floor for fear of being perceived as *trying too hard* or dramatizing the situation. However, participants may have also expected this layout as prison regulation with minimal impact on interview dynamics. However, of note is the presence of a Tanzanian-Indian female researcher in prison, suggesting that the situation is *peculiar* for all those involved. Even less understood and challenging to contextualise is the impact of the peculiarity on the interview dynamics. Especially given the constant shift in control and vulnerability in prison settings (Drake, 2012; Sutherland & Cressey, 1970, p.68, as seen in Wright et al*.,* 1992, pp.148-149).

Similarly, the peculiarity may have impacted the dynamics with PPPs, although in such cases, outside of prison, I was simply perceived as a researcher:

> *"I am like this, what I spoke here at this time, I am not afraid because you want to know for research...it's a must I make it clear so that your research turns out good."* PPP

I did not perceive gender-based concerns in a prison environment as the processes were more mentally taxing than risky (see Crewe, 2009).

In all instances, as a female interviewer with male-dominated samples, the power may have shifted to participants, void of male-on-male competitiveness, and perceived to take place in the presence of a non-threatening researcher. This dynamic favoured this study, resulting in simplified and detailed responses for a non-specialist-female, allowing for more in-depth follow-up questions (see also Kid, 2017). In other instances, this dynamic was limiting as participants perceived me as unable to understand the ruggedness of their world. I would use the vernacular of SIMs (Ch.7) and lesser-known knowledge that was not expected of me to portray myself as capable.

Other gender-based experiences included joke marriage proposals, requests to connect on personal platforms, and concerns for my *female-well-being*:

> *"Yeah, Mzee* [father] *should not be worried that you have found a husband there… Take care of my daughter, otherwise, I will hang you."* OSP

Although my feminist side registered these moments as objectifying, I perceived these as an exchange of *repartee*, responding jokingly to build rapport and balance power (see also Kaspar & Landolt, 2016).

Of note on power and gender are my fleeting and minute moments of gender-based anxiety when visiting village bars. My past experiences sparked this specific alertness as I was aware of possible alcohol-induced male aggression and perceptions of females in these environments (Better Health Channel, 2020; DeKeseredy, 2021; Gomberg, 1993; Mhaule, Poggenpoel & Myburgh, ND; Mitsunaga & Larsen, 2008; Muzdalifat et al., 2014; Palmer & Thompson, 2010).

There is much to be said about power dynamics, but teasing out and alienating a single factor is complicated (Bourdieu, 2003; Faria & Mollett, 2016; Kendall, 2013; O'Reilly, 2012). Accepting the fluctuations, this study maintained to favour the participants in large and, where possible, sometimes unintendedly through gender.

6.4.3 Challenges, Limitations and End Notes on Field Experiences

Soon, the interviews began to evidence theoretical saturation (Fusch & Ness, 2015; Nascimento et al., 2018; O'Reilly & Parker, 2013; Saunders et al., 2018). I was able to draw overlaps within RP's and PP's responses, understanding who had worked with whom on what operation, or discrepancies in responses as noted in the field log:

> *"In the other interview, the RP also claimed to be the operation leader… changing details to make them more central to the operation?"*

Information was beginning to feel like common knowledge to an outsider such as myself. I decided that pursuing more leads would yield a low probability of new information, an endeavour that could be pursued beyond this PhD (Appendix 5).

Time and funds were the most challenging elements of data collection based on the unpredictable nature of referrals and broken promises. One must have continuous access to emergency funds while remaining wholly flexible in their approach.

This study may be criticised for inadequate randomisation and selection bias, as the subjective choice of introducers may skew the data towards cohesive social networks (Griffiths et al., 1993; Kaplan Korf & Sterk, 1987; van Meter, 1990). However, the diversity of funnel sources may, to a certain extent, limit the cohesive nature of sampling. In addition, the poacher sample can be considered substantially large when considering hard-to-reach populations (Lewis et al., 2011), potentially further hindering the selection bias.

A limitation of this study is that the data do not allow for location-specific conclusions on SIMs. However, where data show apparent regional differences, these have been highlighted to avoid potential adverse outcomes in proposed strategies.

This study was conducted by a single principal researcher relying on their self-established team and network. I have come to appreciate the vastness of this network and what now feels like a seemingly effortless manner in which I was able to recruit participants. I am often asked, *"how did you get them to talk to you?"* – I hope that I have succeeded in answering that question and that my insights may assist future researchers in Tanzania.

6.5 Analysis Process

This section transparently discusses how 55 hours and 52 minutes of interviews were translated, transcribed, and analysed (Oliver, Serovich & Mason, 2005). All except two interviews were conducted in Swahili.

6.5.1 Translation and Transcribing

Some suggest that *"meaning may get lost in the translation"* (van Nes et al., 2010, p.313) and that transcribing into the source language (Swahili) and then translating into English is more beneficial (McLellan, MacQueen & Neidig, 2003). However, the latter includes multiple processing of data that allows the translators and transcribers more room to project their own voices into the data. Interviews for this study were transcribed verbatim during the data preparation phase (Lopez et al., 2008; Santos Jr., Black & Sandelowski, 2015) directly into English whilst omitting sensitive information, as decided by the researcher (Appendix 4; Gill et al., 2000; Pontin, 2000).

As this research did not rely on a translator (Temple, Edwards & Alexander, 2006; Temple & Young, 2004), the interpretations were determined by myself, fluent in both Swahili and English, while ensuring that my field experiences informed the process, limiting the loss of meaning (Butler, 1992; van Nes et al., 2010; Santos Jr., Black & Sandelowski, 2015).

One hour of Swahili audio took up to nine hours to translate and transcribe directly into English, further highlighting the hurdles of this research.

I decided on a denaturalised transcription style catering to grammar corrections (Brislin, 1970; Cameron, 2001; MacLean, Meyer & Estable, 2004; Squires, 2009) and to keep vernacular (*ehhe* meaning *yes* and *ahah* meaning no) and street colloquialism to allow authenticity in dialogue (Elliott, 2005; van Ness et al., 2010; see Table 4).

Table 4: *Vernacular reference point*

Swahili	English	Context
Barua	Letter	Carrier (ivory / equipment)
Bwana	God	General expression
Chai	Tea	Bribes
Chumvi	Salt	Ivory
Fundi	Technician/mechanic/	Elephant shooter
Gari	Car	Gun
Gobore	Muzzleloader	N/A
Jamani	Friends	General expression
Jembe	Plough/hoe	Gun
Jamani	Guys or an expression	N/A
Karanga	Peanuts/ground nuts	Bullets
Mafuta	Oil	Bullets
Mahindi	Corn/maize	Ivory
Misumari	Nail (as in tool)	Bullets
Muhogo	Cassava	Ivory
Mzigo	Luggage/load	Ivory
Mzee	Sir	Father/ grandfather/ older man/ boss
Njugu	Peanuts/ground nuts	Gun
Shamba	Field	Bush

Due to limited time, 13 RP interviews were outsourced, accompanied by legally binding contracts preventing the sharing of data. In preparation, I edited audio files to delete sensitive information (Appendix 4) and made a style guide. All the transcribers did not fully follow the style guide, resulting in additional delays. To ensure that all interviews were analogous in format, interpretation and understanding of the languages, I listened to all outsourced files while editing, where needed, the teams' transcripts.

In contrast, APP interviews were *transcribed* from detailed English and Swahili notes. These transcriptions were also subject to grammatical editing.

Seven RP interviews were not transcribed due to data saturation. Five RP interviews were omitted as they provided limited contributions due to the participants' limited experience with elephant poachers and SIMs. See Table 5 for the translated-transcribed process.

Table 5: *Translation-transcribing breakdown*

Sample	No. of participants	Transcribed	Audio length (H:M)	Estimated hours translating-transcribing
OSP	7	7	5:49	50
RP Ruaha (n=13) Serengeti (n=20)	33	21	Total: 28:53 (Ruaha 13:21) (Serengeti 15:31) Transcribed: 23:45	211
PP	6	6	6:06	54
PPP	11	11	11:39	103
APP (notes to electronic)	10	10	N/A (time spent interviewing 3:30)	26

6.5.2 Data Analysis

The six stages of TA (Braun & Clarke, 2006, 2013; Kvale, 1996b) are shared in Table 6, in conjunction with how the NVivo® software assisted the analysis at various stages (Araujo, Carmo & Fraga, 2019; Zamawe, 2015).

Table 6: *Thematic analysis – The six steps of analysis for this research*

Stages	**This study**	**In NVivo® software**
Familiarising with the data	Conducting interviews. Consolidating journal logs. Listening to audio files. Editing sensitive information. Transcribing interviews. Editing outsourced transcriptions. Re-reading the data. Logging all the above processes.	Uploading interviews to NVivo® (single files). Organising formatting on NVivo®. (Skimmed re-reading of data during formatting)
Initial coding	Re-reading transcriptions while coding. Journal notes of the coding process. Listing possible codes. Re-reading data items to ensure they reflect the data.	Adding initial nodes, annotations, and memos. Organising nodes to be subdivided by sample groups (Figure 14). Generating a preliminary coding scheme through nodes added directly to NVivo®.
Themes	Grouping of codes while organising data. Sweeping patterns are noted. Generating themes.	Nodes are organised into sub-nodes (divided by sample groups – Figure 14).
Reviewing themes	Questioning if the dataset reflects the themes. Searching for internal homogeneity (Patton, 1990; Figure 15). Exploring big themes to ensure sub-nodes are correctly placed. Reviewing themes covered by MRA. Reviewing themes not covered by MRA. Rechecking sub-nodes under. Ensuring external heterogeneity (Patton, 1990; Figure 15).	Examining the organisation of sub-nodes. Using NVivo® sort to find heavy themes with most coding. Ensuring aggregated coding from children. Ensuring sub-nodes belong under the themes.
Defining and naming themes	Names were derived from the grouped meaning of prominent sub-themes. If pertaining to MRA, named according to the MRA categorisation.	Exploring overarching themes incorporating sub-themes and renaming.
The findings	Data extracts relating to the themes are presented as direct quotes.	Using NVivo® to find the best fitting quotes. Using the sub-node layout by sample to ensure voices across the data set are portrayed.

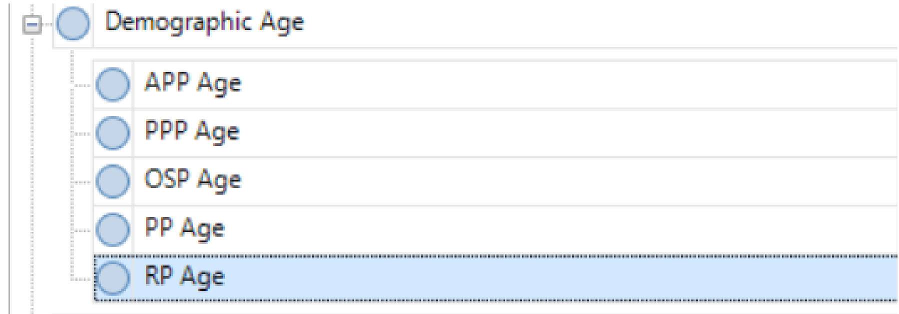

Figure 14: *Example of nodes divided by sample group*

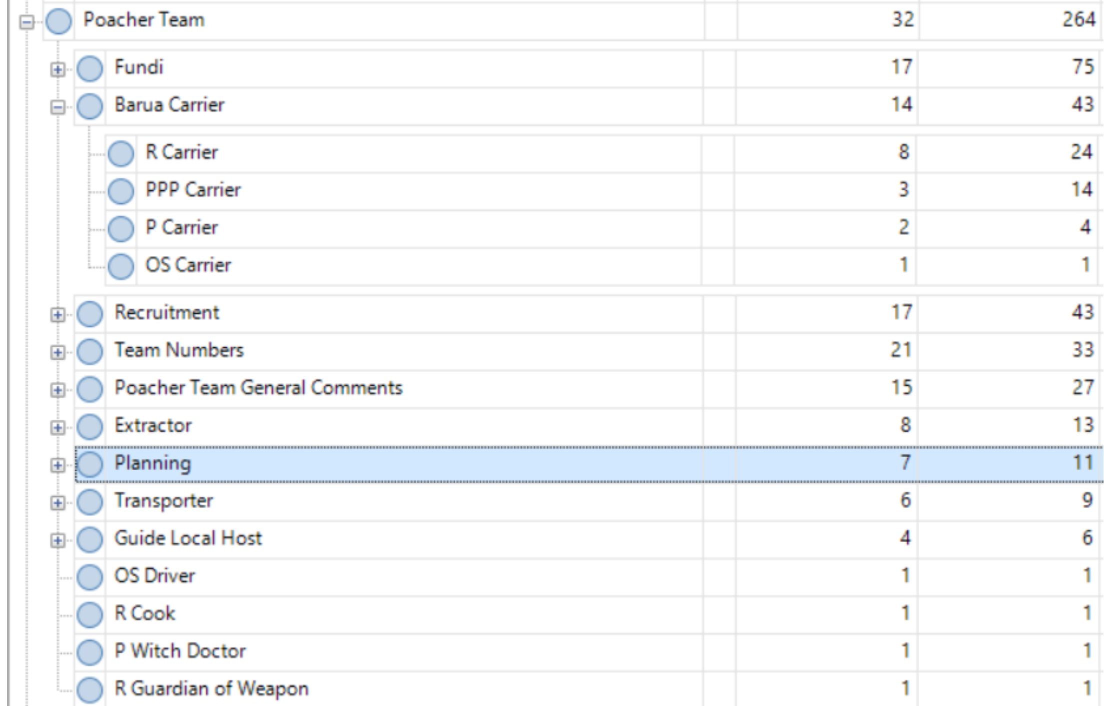

Figure 15: *Example of developed node structure*

There were no minimum or maximum coding units: words, sentences, paragraphs, and multiple paragraphs were coded. Creating meaning from the data was influenced by the MRA and the meanings understood by the MRA regarding SGMs. This open-ended hybrid process (Ch.5 & Appendix 4) allowed the creation of meaning pertaining to SIMs not covered by the MRA.

6.6 Concluding on Data Collection and Analysis

This chapter presents a reflexive account of researcher experiences in participant recruitment and data collection and analysis (including the six requirements of TA). Relying on the philosophical orientation (Ch.5), methodological framework (Ch.5), ethical considerations (Appendix 4) and researcher transparency and reflexivity (Ch.6), the thesis progresses to present the findings of this study.

Chapter 7: Participants of this Study and the Morality of Criminal Motivation

> *"Until the lion learns to speak, the tales of hunting will always favour the hunter."* (Swahili Proverb)

This chapter shares the data on *participant demographics*, breaking away from the traditional demographics presentation in methods to allow researcher reflexivity and cultural clarity. Thereafter, *Theme two* presents 19 distinct motives for ivory poaching across six broad categories. *Theme three* presents the sample groups' perceptions of elephants and the perceptions of rangers and fences with implications for market disruption. *Theme four* shares the guilt neutralisation used by the operators of SIMs, followed by the cycle of guilt neutralisation and self-victimisation before concluding the Chapter.

7.1 Participants Demographics

The demographic (Hughes, Camden & Yangchen, 2016; Meneghini et al., 2021) findings address age, employment, and household support, compared to quantitative regression modelling of a nationally representative sample conducted by Sutton (1998). Cultural considerations before proceeding on demographics include:

- Household support extends to include dependents not living directly in the household to accommodate Tanzanian culture (Manyama, 2017; Mkanta, 2000).
- Demographic questions were not consistently proposed for several reasons.
- Interviews were not conducted with anyone under 18, although juvenile poachers are active in SIMs.

7.1.1 Potential Poacher Participants (PPPs)

The 11 PPPs were Tanzanian males aged 38-61, except one participant whose nationality remains unclear. Table 7 shares household support responses, where one PPP did not respond as they proceeded to make a case against their previous arrest.

Most PPPs supported large families with income derived from farming crops and animal husbandry (see also Knapp, 2007; Loibooki et al., 2002; Ch.2). Two PPPs had additional informal, often transient, employment (drivers, carpentry, and lodge guards), and another PPP terminated their involvement in SIMs as a condition to secure employment in the tourism sector.

The specificity of the regions that PPPs affiliate with is not shared here but broadly includes Serengeti and Ruaha National Parks and the surrounding areas. Three participants also shared their experiences of poaching and trading in neighbouring countries.

Table 7: *Number of people supported by PPPs*

No. of people supported	No. of PPPs (n=11)
12	2
11	2
8	1
6	1
5	2
4	2
Not answered	1

7.1.2 Alleged Poacher Participants (APPs)

The ten APPs were male, aged 19–53 years. Their nationality remains unknown, with only one participant sharing their origins in Kenya. Four APPs responded to family support (Table 8), while six used this opportunity to claim wrongful arrest. One APP suggests that they support 27 dependents. They were asked to confirm this number and did so.

As mentioned in Chapter 6, the legal situation of many APPs was either ongoing or unclear, and they remained less cooperative in their responses. As a result, only five participants disclosed their income source before arrest, including self-owned businesses, general contractors, mining companies, wildlife enforcement, security, and shop owners.

Table 8: *Number of people supported by APPs*

No. of people supported	No. of APPs (n=10)
27	1
10	1
5	1
4	1
Not answered	6

7.1.3 Ranger Participants (RPs)

The 21 RPs (transcribed interviews) were all Tanzanian aged 34-49. All RPs were male, with one female, with 8-28 years of experience. Employment as a ranger is preceded by one or more of the following qualifications:

> *"…you need to have a secondary school education…training from the military forces* [Army/JKT]*, and…an education on wildlife...if you do not have those things…you cannot be employed as a ranger."* RP

RPs were interviewed in the Serengeti and Ruaha National Parks. However, their collective experience spanned to include the National Parks of: Tarangire, Rubondo, Lake Manyara, Katavi, Mount Kilimanjaro, Udzungwa Mountains, and Arusha, and the game reserves of Selous and Maswa (Figure 2).

18 out of the 21 transcribed RPs responded to the household support question (Table 9). Some RPs were unable to provide an exact number.

Table 9: *Number of people supported by RPs*

No. of people supported	No. of RPs (n=21)
12	1
10	1
8	1
7	1
6	2
5	1
4	3
3	1
2	1
Many	6
Not answered	3

Table 10 presents the data on the number of elephant poachers arrested by the RPs to allow the reader to judge the experience of the sample group and the overall data quality of this study.

Table 10: *Number of arrests made by RPs*

No. of elephant poacher arrests	No. of RPs (n=21)
50 or more	3
20 or more	2
8	1
6	1
5	1
Many	9

7.1.4 Police Participants (PPs)

The six PPs were Tanzanian males aged 27-50 years, with most being under 35 years. Their experience spanned between 5 and 23 years, with most having under 10 years. Participants' experiences extended to include Dar-es-Salaam, Mwanza, Serengeti and Shinyanga (Figure 2). Their experiences included: The Criminal Investigation Department (CID), NTAP, Regional Commissioner's Office, Field Force Unit and Wildlife Forensics.

Similar to some RPs, all PPs responded to household support as *many* with some ambiguity regarding the question:

> *"Because you know we are African families, we have a social life, socialism, and share what we have with everyone. For us, maybe you can define it as you like…we also support younger ones, but it's not just me who supports them, you see?"* PP

Table 11 presents the data on the number of elephant poachers arrested by the PPs.

Table 11: *Number of arrests made by PPs*

No. of elephant poacher arrests	No. of PPs (n=6)
100 or more	2
70 to 80	1
10 or more	1
Many	2

7.1.5 Other Stakeholder Participants (OSPs)

The seven OSPs were male, aged 31-47, operating in: tourism, legal, private anti-poaching, village chief and professional hunters. Ethnicity in this sample varied to include Tanzanian, White-Tanzanian and Indian-Tanzanian. Many had experiences working across Tanzania. The sample was mainly young professionals who supported smaller households, typical of urban families (Table 12).

Table 12: *Number of people supported by OSPs*

No. of people supported	No. of OSPs (n=6)
4 or more	1
2 or more	2
None	2
Not answered	2

7.1.6 End Notes on Demographics

PPPs and APPs confirmed that poachers covered an extensive age range, including juveniles. PPPs and RPs similarly supported up to 12 other people. However, APPs had more secure employment and income than PPPs; speculatively, if the APPs' involvement in SIMs is true, then some APPs may have been fences. Based on these observations, future research may benefit from incorporating the education level of PPPs, as they lack reliable income through employment, and detailed questioning of APPs' business operations before arrest to inform the MRA.

I could not verify these claims concerning the enforcement arrest of elephant poachers. However, a high number of arrests is not uncommon as poachers operate in teams (Ch.8). These data also illuminate the commonality of elephant poaching through the sheer number of operators in SIMs. Nonetheless, it is equally possible that some participants may have exaggerated their responses. When this question was proposed to participants, most had follow-up questions due to the complexity of arrests. These included:

- *Type of poacher*: bushmeat, fishing, honey, wood or just elephant poachers.
- *Location of Arrest*: Inside the bush, villages, towns, or cities.
- *Type of Arrest*: The number of arrests or people caught. As poachers work in teams, one arrest could have multiple individuals.
- *Their Role in the Bush*: Were they part of the field operations making an arrest, or if they physically make the arrest.
- *Their Role Outside the Bush*: If they had assisted in tracing information or participated in the sting operation making the arrest.

Future research may benefit from including these clarifications. In addition, future research on a larger sample could consider: the tribal background of participants to provide vital insights into how elephants and ivory are perceived regionally; and the inclusion of female rangers, police officers and other stakeholders to compare the results with this study.

Moreover, this research has shown that poachers are farmers with many dependents and that nearby farmers may indirectly benefit from poacher activity. In future research, they should be considered as Indirect Stakeholder Participants to answer critical questions on their perceptions of and influence on poaching. In addition, ordinary Tanzanians with no connections to SIMs should be incorporated as *Non-Stakeholder Participants* to consider their views on elephants, poaching, SIMs and enforcement. This approach may be extremely helpful in creating popular and effective policies nationally.

7.2 Theme 2: Motives to Protect, Poach or Trade in SIMs

"Life is hard, and the parks have no fence." PPP

At the onset, it is vital to recognise that whilst the RPs' job motivations are beyond the scope

of this research, the data provides vital insights on poachers-ranger interactions and considerations for the prevention of ranger recruitment into SIMs, addressed in a supporting paper. The latter is possible as some RPs perceived their jobs to be poorly renumerated despite threats from humans (poachers, corrupt officials, kingpins) and non-humans (wild animals) (see also Moreto, 2016; Moreto & Lemieux, 2015b; Moreto, Lemieux & Nobles, 2016; Singh et al., 2020; Spira, Kirkby & Plumptre, 2019). Overall, the RPs showed an appreciation for wildlife and motivation to protect natural resources despite the challenges but would benefit from increased wages and recognition for their contribution to conservation. PPs in this study did not specify their motivation to protect wildlife (see Lameck, 2011; Mihayo, 2018).

This study identified 19 distinct factors across six broad categories as either the primary motive for elephant poaching or as a rationalisation of the act. These are presented in the following table and discussed thereafter.

Table 13: *Synopsis of why individuals engage in SIMs*

Category	**Factors**
1. Income generation	Financial independence Quick cash Personal vices Underdeveloped infrastructure
2. Retaliation for HEC	Crop raiding Humans harmed by elephants
3. Response to conservation and enforcement efforts	Exclusion from PAs The cycle of poverty and poaching
4. Peer pressure	Contagious motivator Taught by others Deliberate enticement Reputation
5. Childhood and upbringing	Progression of hunting to poaching Separation of parents Poacher families
6. Perceptions of risk	Underestimating risk Accepting risk Minimising risk Existing market

7.2.1 Income Generation

Ivory is viewed as a tradeable commodity with little use in Tanzania (Ch.2), further evidenced by this research:

> *"And here in Tanzania, what will you use them for? You can't use it for anything."* RP

> *"Because we locals, we have no use for those ivories."* PPP

Consequently, historically embedded saleability and income generation are core motivators to kill, *steal* and trade in SIMs, especially given the PPPs' unreliable source of income, primarily dependent on farming. Participants across all sample groups claimed poverty as the primary motivator, best summarised by the following data (see also Grote & Neubacher, 2016; Knapp, 2009, 2012; Pudney, 2002; South & Wyatt, 2011; TRAFFIC, 2020):

> *"I mean, you think about it, for some guy that just doesn't have anything, and he goes into this bush, and now he's got eight million shillings…."* OSP

> *"Ah, it's poverty!... He will have hunger…he will find death if he catches an elephant, he kills them, he gets his requirements. That's how it is."* PPP

Under income, participants identified **financial independence**, as some elephant poachers successfully support their families through SIMs:

> *"He claimed that he lives by selling meat and elephant tusks, and he even educated his children through this way...one of his children has finished school and is a teacher… because of this work of poaching."* RP

With such successes, poachers are self-motivated to continue poaching. Following financial independence, PPPs and APPs voiced access to **quick cash** as a factor:

> *"So, when it is quick money like this, they do it once, and then it is very easy to be enticed to do it for the second time, and then easier to do it for the third time. Finally, it is addicted now. They don't want to do any other business now."* APP

Despite access to *quick* cash, poaching is a challenging operation representing a significant opportunity cost in time, skills, and resources (Ch.8). The operators in SIMs may have underestimated the risk and efforts needed to operate in SIMs – discussed in Section 7.2.6.

Raising money for **personal vices** was identified in the data and is supported by existing research (Pudney, 2002; South & Wyatt, 2011):

> *"The life of a hunter and the life of a miner is the same thing…. Mostly, if he gets money, he will want to go get alcohol find a beautiful woman. He hunts, and in a week, it's all over. He knows he has his fields* [for farming]*."* PPP
> [Miner is a fossicker without official employment or claim on the land.]

Personal vices are identified in the MRA as a core component of SGMs, often to fuel drug addictions. However, in Tanzanian SIMs, participants identified alcohol and prostitution and

flatly denied poaching to fuel drug addictions (the same is found for other IWT (Pires et al., 2015; Leberatto, 2016)):

> *"No. No. As in, you find them with a sound mind, smart, they don't use weed or anything. As in, they know what they are doing."* PP

Underdeveloped infrastructure was identified as the final motivator for income generation, as communities in rural Tanzania are often logistically isolated. A ranger best explains this:

> *"If they have to go far* [for water]*, then they need more money. Where do they get money? They could think maybe poaching is easy, to kill animals, sell animals and get money."* RP

Similarly, limited funds and access to medical assistance are exploited by fences to recruit poachers, as discussed in more detail in Chapter 8 and evidenced here:

> *"But now you look, in the family, you could be caught with the kids, wife, maybe sibling* [falling ill]*. That boss he gets information, he sent a car, and he took your family till the hospital."* PPP

7.2.2 Retaliation for Human-Elephant Conflict (HEC)

HEC is a historically rooted issue (Ch.2), and expectedly, participants discussed this as motivation or provocation for poaching, especially when their primary, sometimes only, source of income is destructed by **crop-raiding** elephants (see also Moreto, 2019). Such an outcome overlaps their guilt neutralisation (Section 7.4) and is explained by the following data:

> *"Today, if you see an elephant has been killed in the field,* [rangers] *will come even a hundred of them…. But if a field has been eaten…there is nothing! You can't even see a guard who has moved near there…. This is what pushes the citizen's hearts back a bit. This, honestly, ah tsk!"* PPP

> *"…if poaching were ongoing, then the elephants wouldn't be coming here, they would have been killed."* PPP

Crop raiding may lead individuals to vilify the elephants, perceiving them as enemies acting deliberately and maliciously in conflict:

> *"Therefore, surely a person will have to be an enemy to the animal. If he sees that animal again, he does what? He wants to finish it off."* PPP

Aside from retaliation, poaching in response to crop raids serves two other purposes: first, they perceive the action as reducing future crop raids and securing farming income for themselves and their community; second, the value of the elephant's tusks will more than compensate for lost crops.

Humans harmed by elephants may fuel resentment and accidental deaths in self-defence:

> *"…elephant can become angry…you can't wait for the rangers to come and remove them…you must use a weapon. So accidentally, death is the death."* OSP

However, it is implausible that this creates an immediate and opportunistic motivation for poaching as enforcement agents, when informed, will confiscate the ivory:

> *"…if* [the elephant] *doesn't want to go, they* [rangers] *fire bullets…cut the tail and that trunk a little bit and those teeth…. They take it to the office. Then they tell the people to take the meat. They eat it."* PPP

Overall, there is undoubtedly a question of whether elephants provoke poachers or poachers use existing conflict as part of a guilt-neutralisation strategy, as discussed in Section 7.4.

7.2.3 Response to Conservation and Enforcement

The data suggest resentment from populations surrounding the PAs towards the historical **exclusion from PAs** and the neo-colonialism (Ch.2) that denies them employment in tourism:

> *"We go ask TANAPA for work. They refuse. In the camps, they refuse. Then you see you must poach now. It must be that we poach. Because, employment, they don't give us employment. Employees come from Arusha there, Dar-es-Salaam there. We are here, the people of Serengeti, and we are not employed. So, it's a must that we just poach now."* PPP

It is easy to see how this exclusion and HEC could erode trust in conservation efforts and park authorities. At this same time, the exclusion leads to illegal activities, which pave the way for the **cycle of poverty and poaching** with some overlaps to Income Generation (Section 7.2.1), best explained by a PPP:

> *"…the day comes that you are caught, you are taken to prison. In such cases, you need to instruct a lawyer. Profits in the bank? You don't have. You start, jamani! Shall I sell that small tractor?... The farmland? You will return here, and you won't have anything at all! Eh? Now it's up to you totally to make an effort and think if this work that you are doing, is it bringing you profits or losses [laughs]?"* PPP

Once a poacher is incarcerated, they leave their dependents to face further hardships as they are unable to contribute to household income.

Poaching requires a significant investment in resources, network connections, and skills (Ch.8), which may have little value in the legitimate economy but retain tremendous value in SIMs. Facing these challenges post-incarceration and armed with the skills for poaching, a motivational cycle is created to continue poaching, as explained by a PPP and in Figure 16:

"We were going to the bush, and we were being caught…after staying in jail that year…I went out [to poach]*…to match the troubles that you and your family need…Again, I was caught. The second time. Again. I again stayed in jail…As I returned the third time, I was caught again. [PPP: You have never seen any good luck!] [All Laugh]."* PPPs

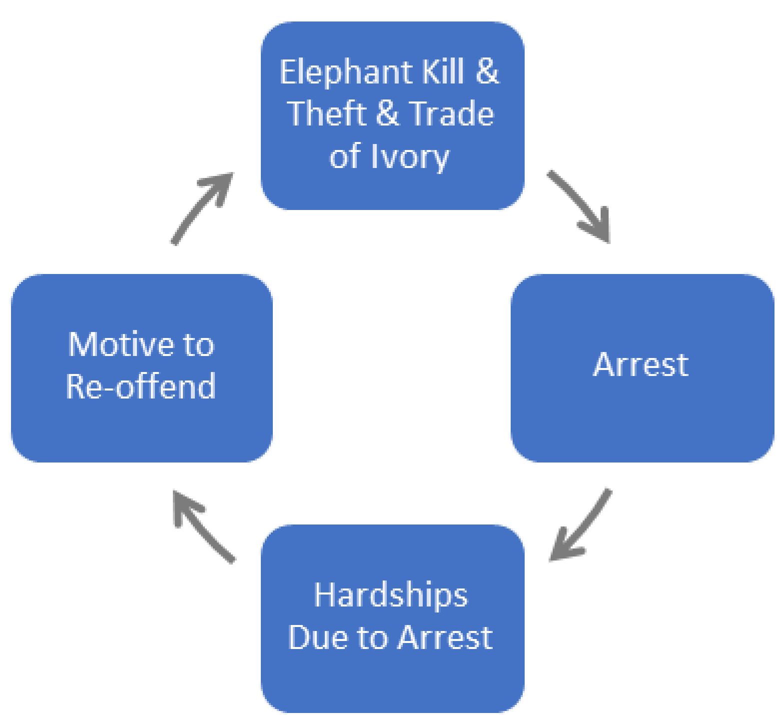

Figure 16: *Cycle of poverty, poaching, and arrest*

Someone specialising in poaching and unable to access employment can fall back on illegal opportunity structures of SIMs (Cloward & Ohlin, 1960; Sutherland & Cressy, 1960), even if the reason for their downfall was attempted poaching in the first place.

7.2.4 Peer Pressure

Extending from differential association theory (Sutherland & Cressy, 1960) and social learning theory (Bandura, 1969, 1971), a contagious motivator is created when observing an outcome for another's behaviour and reasonably expecting to receive the same result for the same behaviour (Ch.3). In the context of a socio-economically strained environment (Merton, 1975), the money from a successful ivory sale is a **contagious motivator** because *"…if you see your friends have gone and come back, and they come holding a lot of money, you have to go* [poach] *as well"* (PPP).

Individuals inspire others to emulate the same behaviour and reinforce the link between the behaviour and the positive outcome over time. This lends to the wrongful perception of the risks and efforts involved in operating in SIMs (Section 7.2.6 & 7.2.1).

Closely related to the contagious motivator is being **taught by others**, as found for SGMs (Ch.4), with the participants of this study referencing similar teachings in SIMs:

> *"He goes to his friends, he is taught, he is taken-and-taken, and he is taken-and-taken, and then he knows. In the end, he goes himself…to shoot an elephant now."* PPP

The structure of poaching teams discussed in Chapter 8 facilitates this teaching, as teams are often a hierarchy under the shooter's leadership, similar to the Yao practice, pre-colonisation (Ch.2). There is a natural path through which an inexperienced member may become experienced leaders.

In contrast to the passive nature of a contagious motivator, **deliberate enticement** is an active measure where a fence or a fence's intermediary persuades people from impoverished communities to steal ivory. This overlaps significantly with recruitment discussed in Chapter 8.

Another social pressure identified was **reputation**, as evidenced by a PPP:

> *"I have been a hunter for long. Don't you see when the Arabs come to hunt here, and they fail, and they say go fetch him there. People are shocked, eh! They come and pick me up."* PPP

The fact that a reputation for elephant poaching can be considered positive shows a stark contrast between the views held by local communities and the (possibly Westernised) views of conservation. If arrested, a reputation as an elephant poacher can also be valuable in prison:

> *"…for example, he makes it to farro,* [direct translation: pharaoh] *do you know farro? [L: No]. It's the head of a group. So there* [in prison] *he gets food, he gets good respect and what-and-what."* PPP

Although debatable, as incarceration is not a motive for poaching, this may allow for the continued motivation of elephant poaching, knowing that even if arrested, they will have access to food and respect in prison.

7.2.5 Childhood and Upbringing

PPPs spoke of learning to hunt at an early age, leading to a **progression of hunting to poaching**:

> *"I started hunting when I was the age of 15. I hunted till I reached the age of 40–sorry–58…in elementary school, I started to hunt warthogs by using dogs. After that, I climbed the graph of hunting. I hunted the big animals, all animals, I carried on hunting."* PPP

Consequently, there is some normalisation of killing large animals and acceptance within the community.

One participant identified the impact of their **parents' separation** on their schooling and subsequent involvement in SIMs. This participant relied on their existing skills and access to illegal poaching opportunity structures to overcome the hardships in their life:

> *"I started poaching when I was maybe 19 years old. My father and mother had split up, that is when my home was broken.... It was my father and me…he got married, and a wife came to look after us. I started school, and after that, I was defeated by school, I pulled myself together and consolidated with poaching."* PPP

Parental deprivation, alluding to the strain theory as the loss of something positive (Ch.3), is well-researched in Western criminology, with limited research in low- and middle-income countries (Higginson et al., 2018). This topic is relatively unexplored in Tanzania and less understood when concerning wildlife crime, warranting further research.

An interesting factor also identified in the data was **poacher families**, identified and expressed in similar terms by several enforcement participants:

> *"Some families are poachers professionally."* RP
>
> *"…they were born into poaching families…they know how to enter…how to use guns…to set traps… these things are just normal for them, an aspect of their everyday life."* PP

PPPs and APPs did not explicitly mention poacher families, a factor possibly missed due to a small sample size or fears of repercussion for their family in mentioning family careers. To inform the MRA, further research is required to understand if poacher families exist and their knowledge of past and present illegal wildlife markets.

7.2.6 Perceptions of Risk

The findings here pertain to RCP concerning the often-excluded risks of poaching, which exceed the risks typically found in SGMs (Ch.3 & 4), for example, armed conflict with rangers, predatory animals, and challenging terrain.

One participant explains how **underestimating the risks** encouraged their participation in SIMs:

> *"Me, I was not afraid because I did not see the consequences of it. I just thought that this was it. If I start this, then I will get something."* APP

One PPP supports this by further suggesting that underestimating the risks is prominent in young poachers whilst implying the notion of poacher families:

“Now, a young person doesn’t know the hardships of every day…they are the ones thinking that ‘father doesn’t know we could accelerate things, we could be bringing some bushmeat right now’.” PPP

In contrast, other participants rationalised and **accepted the risks** of poaching as an aspect of their job, far outweighed by the potential rewards:

“He called himself a prospective dead person…because he considered that he could die at any time…he has managed…survive on that job… He’d rather die than not do that at all.” RP

In some cases, poachers and fences were able to **minimise risks** through corruption to overcome legal fees, bail or *escape* from prison through corrupt channels:

“It showed that he had allegedly died while in prison [laughs]…and he goes back to killing elephants inside Serengeti…this means a deceased person is poaching [laughs]…. So, you see? It's all elements of bribery, of either the police or the prison…even the doctor was bought [laughs]. He authorised that lie. Eh!” RP

Even if imprisoned, they may have the status and benefits of *farro*. This safety net during arrest acts as a motivator not only for recruitment but also for continued involvement in SIMs. However, it is essential to note that this is a rare occurrence as most PPPs reported hardships of returning from serving a prison sentence.

Finally, the **existing market** for ivory may blur the realities of risks involved and provide a continuous motivator to operate in SIMs, as expressed by all sample groups, as evidenced in the following table.

Table 14: *Motivation to poach – Existing markets make the poacher*

Sample group	Supporting quote
APP	*“…the hunter, he may not know this market. They just know that it is a big price, so if they kill…they will get money.”*
APP	*“Many times, if they come across an elephant that has died, they collect those tusks…in that moment, they knew that the tusks are worth money….”*
PP	*“…they do it because there’s a market for ivory.”*
RP	*“…there are others who have no orders* [to poach] *and start thinking of how to get money, so they come, they do it, and then find a dealer.”*
PPP	*“If I meet an animal in there, of course, I will take it. Because when I reach back home, I will get customers.”*

The findings presented in Table 14 evidence the supporting justification made by the MRA that the market makes the thief, not the opportunity itself (Ch.3). This is further evidenced by

the theft of natural death ivory by bushmeat and honey poachers, who are aware of the market.

7.2.7 Critical Reflections on Poacher Motives

The underlying motives for poaching are similar to those of SGMs (Ch.3). Poachers live in impoverished environments and have lost something positive (family, crops, access to resources), with limited access to achieving financial success through legitimate opportunity structures in rural Tanzania (Cloward & Ohlin, 1960; Bernburg, 2019b; Merton, 1975). Instead, they rely on the illegitimate structures and skills, rationalisations, and definitions available to them (Sutherland & Cressy, 1960), and they potentially build on the label of deviancy placed on them through colonial criminalisation (Ch.2; Bernburg, 2019a; Traub & Little, 1994).

The motives identified in this study offer some interesting comparisons with existing literature (Ch.2; Bell, Hampshire & Topalidou, 2007; Forsyth & Marckese, 1993b; Muth & Bowe, 1998; TRAFFIC 2020; Wyatt, 2013; Von Essen, Hansen et al., 2014), with some overlaps including: financial rewards as the primary motivator; underestimation of risks; limited legitimate opportunities; peer pressure; and the existing market.

TRAFFIC (2020) looks at more recent albeit less specific IWT with some contested motivations in Tanzanian SIMs illegality and opportunism to some extent. Especially as the participants of this study were fully aware of the illegality of elephant poaching as a crime far more severe than bushmeat poaching, this concept is firmly supported by Chapters 8 and 6, where participants readily admit to bushmeat poaching rather than ivory poaching.

Opportunism is a recurring theme in this research (Ch.3) and is a suggested motivator by existing research in that poaching occurs when an elephant is encountered without guardians. However, elephant poaching fundamentally depends on planning and preparation before searching for the opportunity (Ch.8). If a person or group misses any of these elements, the risks are quickly compounded. On the other hand, collecting tusks from naturally dead elephants suggests opportunity, but only because the individuals are aware of the existing market and potential rewards.

Furthermore, fences may take advantage of novice or opportunistic individuals with ivory. Despite this, ivory sales at the lowest end of the scale still offer substantial money to individuals in rural communities. Although the time taken to find a buyer may increase the risks for novice traders, the existing market motivates them to partake. A better explanation for opportunistic theft in SIMs comes from the MRA, as justified in Chapter 3.

A potential factor that was not included as a motivator is thrill-seeking, as only one PPP identified this second-hand as a contemporary factor for young poachers:

> *"But now there are these other poachers, these young guys that even we are a little bit scared of. They use an axe, and they can even cut genitalia! But now us guys, the old guys of the past, ahi! You cut the genitalia!"* PPP

It is plausible that thrill-seeking plays a role in the frequency or exact methods of these crimes, but as a motivator, it appears insignificant compared to the factors identified in this theme. Through this lens, it is evident that a collection of factors directly motivates poachers or indirectly motivates others to support poaching. These factors interact with each other in unfortunate ways.

Future research should consider: what demotivates individuals in the same circumstances from being involved in SIMs; people who passively benefit from SIMs (Indirect Stakeholder Participants); and people unrelated to SIMs (Non-Stakeholder Participants) to better policies and recommendations (Section 7.1).

7.3 Theme 3: Participants' Perceptions of Elephants and Each Other

This theme addresses the anthropomorphism (empathy and antipathy) of elephants (Appendix 3), as it plays a crucial role in guilt neutralisation (Section 7.4) and in illuminating the previously discussed motives for poaching. This theme also considers how each participant group perceives the other, providing valuable insights into the dynamic of interactions within SIMs.

7.3.1 Perceptions of Elephants

> *"Elephants are very close to humans, and humans find a way to make them more human"* OSP

The anthropomorphic perceptions of elephants are shared in Table 15.

Table 15: Perceptions of elephants, anthropomorphism, and empathy across all samples

Sample	No. of sample	No. of mentions	Supporting quote
APP	1	1	*"Like how us humans pass down information and do not lose our way… elephants too, in the same way, do not get lost."*
PPP	6	23	*"Elephants! Elephants are very extraordinary. Firstly, elephants have breasts right here like female humans…elephants have memories, more than humans. Very extraordinary things! If you kill the elder elephant…they will show so much concern!... Those that you can hear they say* [mimics rumble]*…I don't know how they talk. If they kill a human, they will cry and mourn for you here...and watch over* [your body]*…. If he finds again that the sun has reached you, he will collect you and put you in the shade over the period of eight days."*
OSP	3	5	*"…those are forestarian* [sic] *people. They felt pain when they see their calves are killed."*
PP	2	2	*"An elephant has a clan, as in it is like a human."*
RP	5	10	*"An elephant is half-human because he has a memory of years-and-years. The way they are, the way that they live in clans."*

PPs and OSPs were all empathetic to elephants and showed various levels of humanisation through their direct observations or those shared through folklore and word-of-mouth. On the other hand, RPs' and APPs' anthropomorphism of elephants was unexpectedly less than that of PPPs, often humanising elephants for memory and matriarchal herds.

On the other hand, PPPs' humanisation through direct observations made during poaching accounted for the emotional complexity of elephants. However, there is a fine line as poachers shift from empathy to antipathy, often due to HEC, where the elephant is seen as the enemy (Section 7.2.2). Alternatively, from empathy to normalisation when describing the process of killing and butchering for ivory extraction (Ch.9).

Consequently, any policy dialogue concerning poaching prevention through awareness and education of the elephants' charismatic traits may have little to no effect on established poachers (who are probably more aware of these traits already).

7.3.2 Perceptions of Rangers and Fences

This section highlights how rangers (Table 16) and fences (Table 17) are perceived to understand the relations between the different operators of SIMs with implications for market disruption.

Table 16: Perceptions of rangers

Perception	Sample	Supporting quote
Collaborative with poachers	PPP	*"What's more, the really good ones are the ones that give us information. The elephants are in someplace."*
Violet towards poachers	PPP	*"…you are beaten till your whole leg is broken…I think they have studied how to beat [laughs], that 'this guy, what style shall we slacken him up with so that he talks' [all laugh].*
Have reduced the rate of poaching	PPP	*"…the protection grew bigger. That's when they increased the number of roads…when people tried to go, and they came out [claps hand], that's it! [L: got caught?]. Ehhe [laughs]."*
Mentors	PPP	*"You find that these same colleagues* [rangers] *that have engaged in protecting significant things are mentoring you. If you have good intelligence, you can conclude that they are not advising me with bad intent, they are advising me from a good place."*
Fear of rangers	PPP	*"You are more afraid of the rangers…it would be better to be taken down by an animal than to be caught by those guys."*

Expectedly, there are positive and negative perceptions of rangers, the latter stemming from corruption and bribery. This is expected, albeit wrongful, of all enforcement agencies and has implications for poacher guilt neutralisation discussed next.

When PPPs were questioned about the violence from rangers, they suggested that it was a calculated risk of their criminal career. When asked why they continued poaching knowing the risks, they related back to the hardships of life:

> *"[L: …to be caught and beaten, why repeat with this work?] Ah hah! [L: Why not leave it?]. This is a very good question!... The environment that we have in the village is very tough. Excessively tough. For example, here you are with hunger pangs…."* PPP

These data suggest a drift between the two extremes of physical conflict and an appreciation of poacher-ranger interactions. These interactions have allowed for mentor-mentee relations where rangers genuinely advise poachers and assist them in securing stable jobs. It is possible to build on the positive relations to enable the policy to become more nuanced and characterised by social rather than exclusively criminal justice. On the other hand, the perception of the fences is often negative, as expressed by PPPs:

Table 17: *Perceptions of fences*

Perception	Sample	Supporting quote
Arrogant	PPP	*"That Mzee was caught with his potbelly arrogance."*
Wealthy and corrupt	PPP	*"The boss…has previously been caught… but they let him go. Us guys, poor and destitute guys that are at the bottom, what will happen to us?"*
Deceiving	PPPs	*"But this now, he wants–[PPP: to spoil you]–to spoil you so that you see, yeah, he is a great friend."*
Take advantage of the poor	PPP	*"…they were spending carelessly. So now when you are looking at that, he says, do you also want such wealth?"*
	All	see Section 7.2.4
Dangerous	RP	*"…it was very dangerous because these are very wealthy people…equipped with weapons, resources, the army, and they have a lot of money…if you go after them and their business, then it is easy for them to kill you."*
	PPP	*"That mzee, that boss, he has the reputation of killing people in the bush."*

The data show that poachers in this study are not interested in being entangled with wealthy and corrupt fences, as they perceive these interactions as high risk. They tolerate them as buyers or remote bosses – a weak link that enforcement agencies could try to exploit for market disruption (Ch.12). It is unlikely that fences will assist poachers to branch out as a fence themselves, but they would assist novice poachers to progress to an experienced poacher. It is vital to note that violent and non-violent fences operate in SGMs and SIMs.

As discussed next, the perceptions provide valuable insights for policy recommendations (Ch.12) and a foundational understanding of guilt neutralisation in SIMs.

7.4 Theme 4: Guilt Neutralisation

Suppose these guilt techniques or excuses (Ch.3) can be removed, then there may be clear implications for disrupting SIMs. PPP's techniques are presented in Table 18: Guilt neutralisation techniques used by PPPswith overlaps to some motivational factors. Thereafter, this section notes the fences' guilt neutralisation before proceeding to the cycle of guilt-neutralisation and self-victimisation before concluding this theme.

Table 18: *Guilt neutralisation techniques used by PPPs*

No.	Technique	Supporting quote
1.	Hardships of life (Income generation, 7.2.1)	*"We go because of hardships, not because of any other reason."*
2.	Elephants deserve it (HEC, 7.2.2)	*"Elephants kill humans. Why can't they be killed?"*
		"…if I see him, it's a must I kill him because if I don't, then he will eat my crops, and the government won't do anything."
3.	PAs deserve it (Exclusion, 7.2.3)	*"…a lot of employees are from Arusha, but the PAs are ours."*
4.	Blame on outsider influence on policy changes (Exclusion, 7.2.3)	*"…the government used to allow hunting to supply the meat.… Then the companies of the white person came and bought hunting blocks…they hindered all matters of hunting* [for the villagers]."
5.	Poaching is not good	*"So now it reaches a point that you educate these peers of ours…that the animals might bring some deals…but the things that go on after that are just losses! It becomes like a curse…."*
6.	I helped the enforcement	*"I told the rangers: 'Jamani, listen over there, I found some tracks of motorbikes…. Now, I don't know if they did or did not do patrol, but I reported it. I reported it."*
7.	Some poachers are worse	*"I told you…*[the Somalians]*…were very much the enemies of the animals."*
8.	Some members of enforcement help you do it	*"So now you are like the enabler. He cannot do it because he doesn't want to lose his job."*
9.	Some members of enforcement do it too	*"The enforcement…they also have a channel...for the purpose of marketing. So that if they catch…the load…they take 90 per cent to sell, and then 10 per cent go with it to court."*
10.	I help the community	*"…*[the bosses] *drop me off with my meat…I distribute the meat here till they* [the villagers] *get excited, 'so what is* [the celebration] *today?"*
11.	I didn't know better	*"I saw how it was, the local poacher is not good, but I did it during that, that foolish age."*

Though remorse is a problematic component to quantify, the following quotes present participants' views on remorse and illegality, but not necessarily the moral ambiguity of poaching (Sykes & Matza, 1957):

> *"Ehhe, you shot it. It dies…but if you sleep, you see how it suffered, that animal, it cuts your* soul.*"* PPP

"…he knows…this business is dangerous, and it is largely illegal. He has got that knowledge." APP

During the *drift* to poach, an individual's internal narrative may pull away from understanding the illegality, emotional intelligence of elephants (Section 7.3) and their remorse, pulling towards the techniques presented in Table 18. Therein lies the blurred lines between guilt and motive, as evidenced by neutralisations 1-4 in Table 18.

The following can be broadly understood as poachers portraying themselves *as good people doing good deeds*. This is initiated by claiming that other poachers are worse than them (Table 18:7) and further embedded by compensating for their wrongdoing by providing for the community (Table 18:10); discouraging themselves and others from poaching; and assisting enforcement (Table 18:5-6). Of note is that supplying the community with meat may ensure that the community protects the poachers' illicit activities from enforcement investigations, similar to the operations of drug lords in Brazilian favelas (Arias & Rodrigues, 2006).

Thereafter, poachers may claim that *it is normal* or that *everyone does it* as a form of neutralisation. This materialises through claims that even *good* individuals (enforcement) are also involved (Table 18:8-9), and when considering the fences, it indicates normalisation as all types of people do it. Alternatively, some participants claimed that *they did not know better* and joined SIMs at an early age, but now that they are involved, they cannot see themselves changing professions.

Policy intervention informed by these data may only be possible by addressing vital underlying factors of poverty and exclusion, as addressing techniques such as *good people doing good deeds* are more challenging to manage.

There is little evidence of the fences' guilt neutralisation techniques, with one OSP with previous experience in SIMs justifying their actions as trading the ivory rather than killing the elephant as they were "*not the hunter".* Speculatively, fences may claim *good deeds* by providing the poacher food, transport, or medical aid (overlapping with deliberate enticement (Section 7.2.4 & Ch.8) and the aforementioned Brazilian favelas).

Of note is that guilt neutralisation was also expressed by those who have killed elephants as a sport (Appendix 3), suggesting that the act of killing an elephant is perceived as wrong by many. However, some individuals can illegally or legally neutralise and drift into the killing and trade of elephants and ivory.

7.4.1 Self-Victimisation in SIMs

This study concludes that guilt neutralisation in SIMs is a self-feeding cycle through consequential self-victimisation primarily influenced by two factors of poaching. Firstly, young elephants experience heightened musth and aggression when they are unable to learn to forage from older bulls lost to poaching (Ch.2). Secondly, elephants in high poaching or hunting zones (game reserves) are more aggressive than those in tourist zones (national

parks) (Ch.1):

> *"Elephants in the national parks, he knows he is safe…and elephants in the game reserves…they are constantly stressed…he attacks. Every moment he hears the guns, his friends are killed. [PPP: He knows the sound of a gun]. He knows it."* PPPs

Consequently, poachers contribute to their victimisation and those of their community through increased HEC (with contributions from legal hunters' *ethical* requirement to shoot older elephants excluded from the breeding herd (Appendix 3). The self-induced HEC allows for their motive, perceptions, and guilt neutralisation for poaching, as depicted in Figure 17.

Consequently, there will always be a reason to blame the elephants and continue poaching or hunting through neutralised rationales. However, the social and colonial criminalisation of poaching, the historically embedded HEC (Ch.2), and its impact on guilt neutralisation have, in essence, evolved together. It is then challenging to differentiate between an individual's lived reality and their *excuses* for illegal actions.

Although to end with some optimism, market disruption is possible through awareness of the self-feeding cycle with *Indirect Stakeholder Participants*, who may be encouraged to discourage poaching (Ch.12).

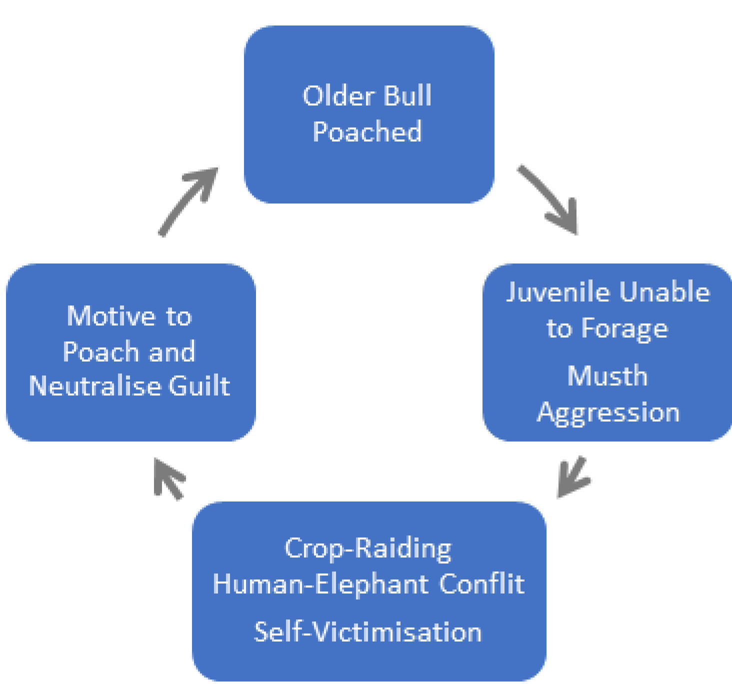

Figure 17: *Guilt neutralisation and self-victimisation*

7.5 Concluding on Motives

In summary, future demographic data could benefit by incorporating gender balance, tribal information, and poacher education, while enforcement data will benefit from focused questions on the arrest of wildlife offenders. Theme two explores motives for poaching and justifies the MRA's understanding that the market makes the thief, consequently supporting the MRA for this research. The perceptions of the sample groups identified a weak link between poachers and fences that may be explored to disrupt SIMs (Ch.12). The data informs that strained environments with limited income options and access to SIMs, coupled with antipathy towards elephants, lead to the funnelled decision to poach. This is thereafter met with guilt neutralisation that borders motives for poaching. *Theme four* concludes that self-victimisation and guilt neutralisation provide a self-feeding loop, suggesting that poachers will always have a reason to poach. This chapter answers the popular question of *why individuals poach,* sharing comparative views from enforcement and OSP samples to meet objectives two and three of this thesis (Ch.1).

Chapter 8: Before the Chain of Transactions

This chapter presents the minutia of recruitment and planning before the poaching to explore options for market disruption before the loss of elephants. The chapter begins with the participants' admission of involvement in SIMs, which provides an overview of the roles in poaching teams and establishes the foundations for the remainder of the thesis.

Theme two presents detailed insights into poaching teams, including roles and payment structure. The theme progresses to detail the facilitators of SIMs.

Theme three shares recruitment into SIMs aligned to the findings from SGMs (Sutton, 1998) and the participants' insights in Chapter 7. The theme concludes with critical reflections with implications on market disruption.

The final theme looks at the supplies for poaching in detail to understand the level of planning and organisation involved before searching for the opportunity to poach and how these details may inform prevention interventions.

8.1 Theme 1: Self-Reported Participation and Denial of Participation in SIMs

The information presented here is vital to understanding how ivory moves from elephant to buyer, including self-reported involvement in SIMs by the PPPs and APPs, with the former detailing their exact roles in Table 19.

Only one APP admitted to marketing between poacher-buyer:

> *"A person came to me and asked me if I knew anyone living near the PAs that can get them elephant tusks…I said okay, and we negotiated the details like where the sale would take place…and it turned out that they were informers!"*

In contrast, all PPPs admitted to some form of poaching (including bushmeat). This difference in the number of individuals willing to admit their involvement in SIMs may be explained by how interviews were conducted as APPs were in prison awaiting trial. On the other hand, PPPs were in settings they chose and considered safe, perhaps allowing them to share openly in the interview and detail their exact roles, which are presented next (see Table 4 for vernacular).

Table 19: *Self-reported roles in SIMs by PPPs*

PPPs self-reported roles	PPPs (n=4)	No. of mentions	Supporting quote
Fundi **– Shooter**	4	17	*"[L: what animals were you doing?] To kill? [L: Yeah]. All! [L: All?] All! Until even elephants. Yes, I have done it."*
Barua **– Carrier** *Porter of tusks and equipment*	1	2	*"During that time, I was a barua. [L: A barua?]. The one to load. [Mr S: The carrier?]. Yes, carrier, a porter, or to carry the elephant tusks."*
Extractor – *extracting tusks after a kill*	3	3	*"*[the shooters] *had gone, and we removed the tusks… we found about nine carcasses!"*
Transporter – *national and international*	4	6	*"I got business from Burundi…I sold to those locals there. They were my customers. I said, ahh, so! There is business here!"*
Rural Fence – *poacher to buyer*	2	3	*"I was if you needed a sponsor, then I would sponsor."*
International Poacher –	1	2	*"We got on a bus…the plan was made to cross over to Mozambique."*

Of the four PPPs openly admitting to elephant poaching, all had experience as the *fundi* and in transporting the ivory to neighbouring countries (Uganda being the most common). Two had experience as intermediary fences or marketers connecting poachers to buyers for commission. Their roles also extended to experiences as ivory carriers, three of whom had experience as extractors. Only one PPP had poached internationally. The responsibilities of these roles are discussed in the subsequent analysis of poacher teams and facilitators.

8.2 Theme 2: Poacher Teams and Facilitators

"…to hunt doesn't mean that only one person goes. We go as a team." PPP

To be able to tailor strategies, it is essential to comprehend the dynamics between team members. Including the data on participants' self-reported admission, the data presents six sub-themes, including:

- The *fundi* (shooter) is responsible for killing the elephant and is a trusted group leader (see Yao hunting practices Ch.2).
- The *barua* (carrier/porter) – carries tusks and other equipment during expeditions.
- The extractor – removes tusks from the cranium and may assist as a carrier.
- The driver – motorbike-taxi to transport tusks.
- A cook – sometimes employed to assist expeditions.

- The local host – navigates the team with knowledge of ranger posts, patrols and herd movement.

The variations in the poacher teams' size and payment structure are presented next, followed by data on the facilitators who operate outside the bush, not directly involved in poaching, but are integral in its operationalisation. They include:

- The transporter –trusted intermediary responsible for procuring ivory and recruiting and paying the *fundi.*
- The local host –a trusted connection for the transporter and visiting *fundis* foreign to the region.
- The witchdoctor – facilities local medicines and superstitious practices for a successful hunt, akin to historical practices detailed in Chapter 2.
- The guard of weapons – accounts for the loaned ammunition and returned ivory.

The theme concludes with critical reflections on these data and their implications for the MRA.

8.2.1 The Poacher Team Composition

This sub-theme details the role of the core participants in a poaching team that suggests that a lone hunter is a rare occurrence and supports the complexities in the enforcement responses concerning arrests in Chapter 7.

8.2.1.1 The Fundi

> *"Fundi, whose job is to kill the elephant. That one, his only job is to shoot."*
> RP

The data evidence that fences may hire reputed and skilled shooters and that they may travel to different regions or countries to poach. The shooters do not assist with any other roles in the team. As a fence can employ the shooters, it complicates the understanding of the types of shooters, necessitating the following categorisation:

Table 20: *Classification of the types of elephant shooters*

No.	Type	Description
1.	Independent *fundi*-fence	Shoots elephants, recruits a poaching team, can also recruit other independent shooters, procures tusks to sell to rural and urban fences, and may lead poaching expeditions in neighbouring countries with hired independent shooters.
2.	Independent *fundi*	Recruits a poaching team and sells to fences, primarily through intermediaries.
3.	Employed *fundi*	Hired by a fence (possibly through an intermediary), may collaborate with other shooters depending on the volume of ordered ivory.
4.	Foreign *fundi*	Usually from a neighbouring country, they recruit their local poaching team (possibly through the assistance of a local host). They can operate independently or be employed by a Tanzanian or international fence.

In all instances, the *fundis* recruit their teams through personal networks, possibly using deliberate enticement (Ch.7; Section 8.3) or going through a local host in unfamiliar regions:

> *"They agree on how much the sniper will be paid, and the sniper goes to the villages…to look for people who will cut out the teeth and carry the load."*
> RP

In further similar practice to the Yao (Ch.2), the ivory belongs to the shooter until it is exchanged for money. The shooter then pays the team (Section 8.2.2). Where there are multiple shooters, the leader is the one who commissioned the recruitment.

The question remains on how the *fundi* learnt to shoot elephants and how many elephants they had killed. PPPs were ambiguous in their responses, implying that some PPPs were, or are, prolific shooters:

> *"Ah, to remember is hard…maybe today you shoot nine…you stay in there for one month…and shoot 14…other times…there is nothing…[L: What do you think they reach near to?]. Eh, in the 50s or 60s, it could reach those numbers, maybe."* PPP

Table 21 shares the data on how *fundis* become experienced shooters, with some overlap to the motivations for poaching (Ch.7), including: contagious motivator; taught by others; progression of hunting to poaching; and poacher families.

Table 21: *How poachers become experienced shooters*

Fundi experience	Sample	Supporting quote
Taught by community or a *fundi*	PP	*"And they are all very cooperating in the village there…he goes and says: 'Teach me how to shoot?'...he gets experience from the teachings...."*
Family	RP	*"So, the father teaches the kids, and the kids then teach forward."*
Army	PPP	*"…people…that are in the Serengeti, a lot are soldiers…guns, they know how to use…training they have, and they know where to hit the elephant so that it dies quickly."*
Progression from bushmeat	PPP	*"…impala, sometimes a buffalo, so with that experience, on another day, you can try a big animal. Ehhe, because there are many trips, you can be experienced within one year."*

Similar to Chapter 7, only the RPs and PPs allude to the notion of poacher families and learning to shoot this way, and as they provide a larger sample than PPPs, it cannot be ruled out. It is evident that the *fundi* can learn to shoot through many opportunities available to them; they operate independently or are instructed by a fence; they can be a *fundi*-fence; are the leader responsible for paying the team; they poach in numerous regions; and they take on the most risk through possession of firearms and killing the elephant.

8.2.1.2 Supporting Staff

The role of a ***barua*** (used interchangeably with carrier and porter) is the same as the Wanyamwezis' (Ch.2) – to carry tusks and supplies. Such a role and others within the team can be impacted by age:

> *"He asked me, 'Bwana, can you walk?' – 'Yeah, to walk, I can.' – 'But you are old.' – 'Wait, let me just try.' As in, you could walk, because they put the ones with more years of age to walk. You just carry it, and you go."* PPP

Accordingly, a single *fundi* can employ several *barua*s depending on the volume of ivory and pre-theft calculations:

> *"Ehhe, as in you speak with the carriers to make sure it's equal with the number of bullets you have. With these bullets, I estimate I could kill ten elephants. Therefore, how many people shall I take?"* PPP

The *barua* commits to two responsibilities, extraction, and porter. Suppose different people fulfil the roles of extractor and carrier. In that case, the carrier may transport the extractor's equipment (Ch.9), suggesting some hierarchy from *fundi* to extractor and then *barua*. This may be because some extractors are professionally experienced (Ch.9).

The *fundi* may also instruct **taxi** motorbike(s) to transport the tusks from the outskirts of the bush to storage, drawing parallels to *MO* in SGMs (Ch.4) (Bishop & Amon, 2015; Gamberini, 2014; Kisaalita & Sentongo-Kibalama, 2007; Mbegu & Mjema, 2019; Noe, 2020; Neema, 2020). However, through negotiated prices, the team may recruit only those who can drive on wild terrain and know discreet and passable routes. Equally possible is that the drivers meeting the team on the outskirts of protected areas may not be aware that they are transporting concealed ivory and conduct the transport at set regular rates (Sutton, 1998).

The final supporting staff with little mention in the data is the **cook**, as food supplies are integral to poaching expeditions (Section 8.4), and this role must be considered.

The **local host**, mentioned by all samples, has extensive knowledge of the bush, elephant movement and ranger posts (Ch.9). These details are learnt through observations and minimise the risks while guiding *fundis* new to the region.

Like the past and present hunting safaris, the *fundi* travel with supporting staff. The team size ranges from 2 to 15 people, with responses suggesting a team of 4-6 members with a single leading *fundi*. Alternatively, larger groups may split into smaller poaching parties guided by multiple shooters.

8.2.2 Poacher Team Payment

A fence gives a *fundi* advance payment for supplies and recruitment. The *fundi* then provides the supporting team with an advance for reasons best explained by a *fundi*:

> *"…you cannot leave without leaving nothing at home…and the porters too…you have to calculate a-little-a-little so that mother doesn't miss money for salt when they are away…they can get twenty* [20,000 TSh/8 USD].*"* PPP

Note that the poacher team payment, presented in Table 22, differs from the price of ivory price (Ch.10) and that all advance payments are deducted during the final sale. Due to the overlap between the *fundis'* wage and the price of ivory, their wage is discussed in Chapter 10.

Table 22: *Fixed-rate team payment by fundi*

Payment – TZS	USD	Role	Supporting quote
Bushmeat	N/A	Local host & extractor	*"…he shot, he took the tusks, and he left the others…for the meat so they could sell it in the villages. So, it wasn't as if they were paid…"* RP
500 –1000	0.22–0.43	Carrier	*"[L: Did they pay you as a carrier per kilo?] Ahah, as in they just give it out, you give him 500, him give him 1000."* PPP
100,000 – 200,000	43 – 86	Carrier & extractor	*"50 or 40 USD…the ones who are carrying…."* OSP
			"…if he carries…to the villages…he is two lakhs." RP
100,000 – 150,000	43–64	Local host	"…[for] *the purpose of showing them around…they may get paid around one lakh or one and a half lakhs…."* RP

Although rare, a fundi may pay the team in elephant meat. On the other hand, the data widely suggests that carriers and extractors are paid 100,000 to 200,000 TSh. The outlier response of 500-1000 TSh may be in reference to an older payment structure. Notably, carriers and extractors were often grouped, further evidencing overlapping roles. Only one RP explained the cost of instructing a local host. The data did not evidence the payment for other team members, such as the cooks.

These data also indicate that *"the team is not paid equally"* (PP), and there may be some fixed-rate payment independent of the tusk's weight:

> *"The carrier, he is paid…5,000 TSh* [2 USD] *to 10,000 TSh* [4 USD]…*to extract and carry…if the tusks are 15 kilograms, they will be paid that amount 15 times,* [75,000-150,000 TSh [33-64 USD]]*."* RP

This payment is corroborated by a PPP who stated that the *fundi "for example for 100 kilos…can remove one million because of the porter,"* which equates to 10,000 TSh [4 USD] per kilogram of ivory or 150,000 TSh [64 USD] for an average 15-kilogram tusk.

Despite the later transcriptions suggesting payment by the kilogram and Table 22 indicating a market-determined payment, when calculated for an average tusk of 15 kilograms, both are analogous except for the outlier response of 500-1000 TSh.

8.2.3 The Facilitators' Composition

The core facilitators that enable the poacher teams are not directly involved in the poaching expedition but critically influence the teams' success. They include: transporter, marketer, local host, witchdoctor and the guard of weapons.

Four PPPs confirmed their experience as **transporters** (or intermediaries) (Table 19), delivering ivory from *fundi* to rural, urban, or international fences:

> *"There is another person who is paid a part to collect the load and transport it from point A to point B…that is the style in which they collaborate, they employ."* PP

The transporter is hired for their existing knowledge and network with *fundis* and local hosts or their ability to establish these connections. In more organised chains, the transporter may not interact with a fence directly, instead dealing with another intermediary. The transporter is paid by the fence and may be permanently employed to facilitate the delivery of firearms payments and even motorbikes. In more organised chains, multiple transporters may be instructed:

> *"In short, that woman never came into contact with the tusks personally, so catching her was a bit hard. Because she had many intermediaries…. All she received was news."* PP

The **local host's** role as a guide to the fundi may be extended to facilitators entrusted by intermediaries to pay the *fundi* or assist in recruiting a *fundi*:

> *"Then later he will tell you very well then, all things will be finished by this guy* [the host]*, all the load will be with this guy, I will leave* [the money] *with him as you know him."* PPP

When chains are less organised, an independent *fundi* or intermediary may arrive in a new region and, over time, build a trusting relationship with a local host who will facilitate future endeavours.

A rural fence or a transporter may visit a **marketer,** as evidenced by the APP's admission in theme one of this chapter. The marketer is different to the local host as the marketer decides on their commission (Ch.10).

The role of a **witchdoctor** is explained in the following transcript:

> *"He was collaborating with them like a local witchdoctor to help them disguise and ensuring them that I have made this medicine that will ensure that you will be successful."* PP

The PP's arrest of a witchdoctor collaborating with the poaching team evidences the use of local medicine for poaching (Section 8.4.4) and aligns with historical practices (Ch.2).

Another facilitator identified in the data by a single RP is that of a "***guard of weapons"*** explained as:

> *"…the fundi…could say that I have killed two, but in reality, I have shot four…and sell those tusks elsewhere…that is why you have the guard of the weapons whose job is to know how many elephants that gun has killed during that trip."* RP

The guard of weapons is instructed when the fence provides the gun and bullets to the *fundi* to ensure an equal exchange of bullets for tusks. It remains unclear if the guard of weapons accompanies the team or accounts for the tusks and bullets when the team returns. It is possible that this responsibility is covered by the transporter or trusted local host rather than someone hired solely for this purpose.

The data provided in this theme highlights the relations between the poaching team and facilitators, summarised in Figure 18.

The data presented in this theme have implications for crime prevention responses (Ch.12). As the data evidence, several people who are involved in ivory poaching, planning and recruitment are vital for a successful expedition, as discussed in the subsequent sections.

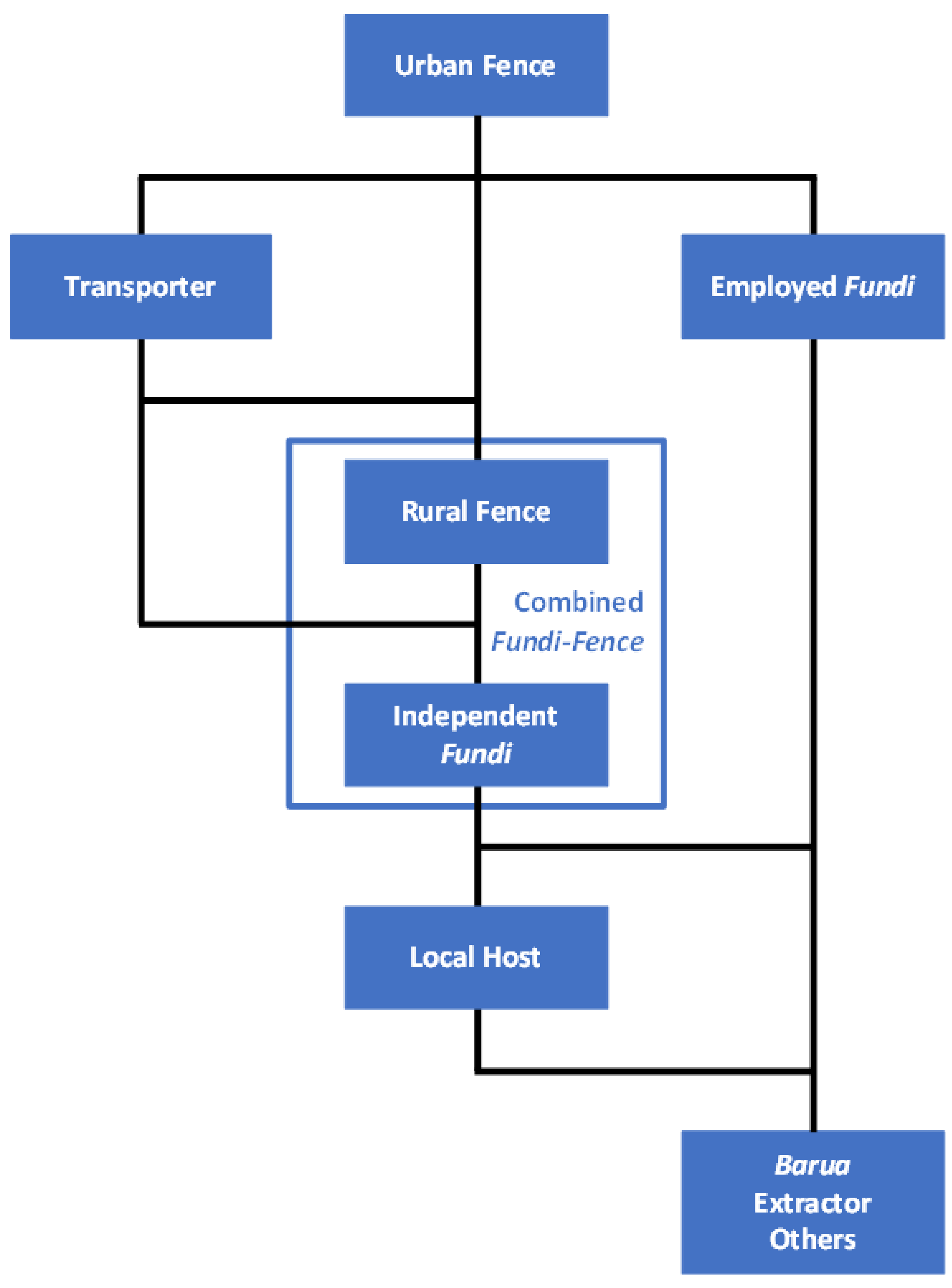

Figure 18: *Recruitment of poacher team members and facilitators*

8.3 Theme 3: Recruitment

The data analysis formulated recruitment as a primary theme with six sub-themes: existing knowledge, networking, progression from bushmeat, deliberate enticement, family business and foreign operators. Some of these intersect with the motivations to poach in Chapter 7 and with existing research on recruitment into organised crime, SGMs and IWT (Ch.4.2; Brymer, 1991; Kemp, Zolghadriha & Gill, 2020; Kirby et al., 2016; Mmahi & Usman, 2020; Musgrave, Parker & Wolok, 1993; Pudney, 2002; Steffensmeier & Ulmer, 2005; van Koppen & de Poot, 2013). The theme concludes with critical reflections exploring crime disruption responses.

Before proceeding with this theme, it must be acknowledged that the data indicate three stages of recruitment:

> *"Many times, a person from outside…like Asia…organises people from the interior who are familiar with the area…they usually go to big cities…and look for a sniper, and they pay him, the sniper goes to the villages to look for people who will cut…carry the load…once they get the tusk, they…give it to the middleman who came to organise them…*[he]*…gives back to the main person who sent them…."* RP

> *"So, level three…the middle-class buyers of the ivory...procure level two… to facilitate delivering cash to the, the level ones* [poachers].*"* OSP

The data show that Tanzanian urban fences are also operational, but they often export to neighbouring countries, with a few having intercontinental connections. The quotes also suggest that ivory poaching, despite being essentially a rural crime, would be challenging to maintain without the urban framework. Both must be considered for market disruption.

8.3.1 Existing Knowledge

Thieves and distributors in SGMs are introduced through individuals already involved and can guarantee the newly introduced person's authenticity (Sutton, 1998). This study found the same for SIMs, where existing knowledge and trustworthy relations are integral to recruitment.

Existing knowledge depends on the fence's or the transporter's knowledge of local hosts and *fundis* situated rurally (see also Mmahi & Usman), 2020). This is comparable to Western recruitment focused on the thieves' areas of operation, such as flea markets (Johns & Hayes, 2003), or recruitment by the mafia and drug lords focused on an individual's background or familiarity of an area (Albini, 1971; by Murphy, Waldorf & Reinarman, 1990; van Koppen, 2013).

Thereafter, recruitment in SIMs is most likely to be advanced through a local host and established networks in rural criminal sub-cultures:

"Ehhe, the buyer would come here and start asking who is the fundi?... They must reach out to someone…they are acquainted with because if you go…as a guest…and start asking, no one will receive or accept you… But now they start with a local host…. 'I have this guy of mine who needs a fundi'. 'Eh bwana, do you know him really?' 'I say! Yes, I know him very well.' 'Really?' 'Yeah.' 'Okay, then bring him.'" PPP

The recruiter in SIMs is looking for a specific skill set for elephant poaching, as found in SGMs when considering the theft of specific goods, such as paintings from a museum, requiring tailored skills and knowledge (Sutton, 1998). Like SGMs, once the relationship has been established, fences can order the theft of ivory, poachers become prolific, and SIMs function as a more organised crime. Without existing knowledge, a person must rely on their social and networking capabilities to procure ivory, as discussed next.

8.3.2 Networking

Each party must communicate (Albini, 1971; Comunale et al., 2020; van Koppen, 2013) their trustworthiness and criminal value when approaching another party during a high-risk criminal endeavour, overlapping with the signalling theory (Gambetta, 2009, 2011; Searcy & Nowicki, 2005). The supporting quotes for recruitment through these skills are presented in Table 23 and discussed thereafter.

Table 23: *Recruitment into SIMs – Networking*

Sample	Supporting quote
PPP	*"The one that the Chinese had sent, they come till the village…they can even stay a whole month...arrange a guest house there…. They would come from Dar-es-Salaam, Dodoma, Kigoma, that's it."*
PPP	*"And even if you see a person who plans all this is in the city, they came from these areas* [near PAs]. *Therefore, once he has started those conversations* [in the city], *he can think how come back home, these things* [ivory] *we have them. Already then, people start looking for ways. Ehhe."*
PP	*"This guy, he used to sell those fruit and…she called him for the reason of entrusting him with cleaning the house and whatnot. So, they were looking for a way on how to get these tusk…. He said no problem because he was young, and his origins were there in Kigoma…*[where] *the poachers…are really good. As she asked him, 'can I get these things?'…. So, this young guy, he got all his friends to chip in like the likes of* [omitted]. *That's it. They started."*

The locations mentioned in Table 23 are integral to SIMs (Figure 2). **Dar-es-Salaam** houses the main export routes (ports, stations, and airports) favoured by urban fences to deliver to international buyers. **Kigoma**, bordering Burundi, has access to illegal guns used in SIMs and is known to house reputed elephant poachers (Ch.8). **Dodoma** links Southern and Western

Tanzania, an essential requisite for poached ivory transportation from rural areas to port cities or neighbouring countries. Moreover, these cities house individuals from rural vicinities searching for employment, allowing fences (or intermediaries) to recruit within their urban networks. Alternatively, individuals searching for urban employment may overhear conversations concerning SIMs and look to establish trusting relations with urban fences or their intermediaries, promising to source ivory from their home village. Both possibilities are evidenced in Table 23.

Caution and time are crucial to eliminating the risk of informers or undercover agents. Instructed transporters commit to staying in village guesthouses (Table 23) over some time to establish reliable networks. An OSP shares a mimicked example of this recruitment process as experienced by them:

> *"You can start it like a story: 'Tsk! People used to kill elephants. I think people become rich through killing the elephant.'*
> *'Yeah, I used to hear people who are doing that.'*
> *'Yeah? So then, as in, you know people in this story* [business]*?'*
> *'Yeah, we know! Somebody was doing this…he has built a house because of that.'*
> *So, after you know that somebody…, you have to pull apart to that somebody and find out who that somebody is, that's how it works."* OSP

This process is similar to this study's funnel and snowball approach (Ch.6).

Alternatively, an urban recruiter may connect with their rural network (friends and acquaintances) to enlist others into SIMs (Table 23). Nevertheless, even with this immediate network, recruitment takes place over stages and may have to start with bushmeat poaching (overlapping the next sub-theme):

> *"I will start by becoming his friend slowly-slowly…. That is Stage 1. Stage 2…'listen, I have something that needs doing. Do you know anyone who can help me out?' He will say, '…that guy…will agree to do it.' So, they do their research…beginning with those dealing with impala and things…. Now Stage 3…they will see he is also serious…*[the local host will say] *'there is a person whose job this is, go speak to him.' Then there will be a discussion like: 'Do you believe him, or is he an intelligence spy?' 'Ah, that guy, he is no trouble.' It goes on and on like that every day. That's it! Then they try to do business."* PPP

The intermediary may have direct links with an elephant poacher, but in most cases, a recruiter must do their groundwork to grow their networks, thereby making future recruitment easier and ensuring their employability by urban fences.

Alternatively, a *fundi,* carrier, or extractor may approach the transporter, now a guest in the village, for job opportunities:

"Having conversations.... 'Ah bwana, I want to go as well, so I can also get money, my friend…I will work hard.' 'Okay then, let's go.' [L: And that's it you went?] Yeah! [Laughs]." PPP

Such interactions suggest that poaching is widely accepted in some rural sub-cultures, with conversations had during social gatherings. However, these data also suggest some discretion is essential due to a paradigm shift in increased sting operations and perceived risks:

"…90 per cent of everyone is in the protection of colleagues. [PPP…people, right now they don't talk in threes…even while drinking…. [L: Eh! people are that scared?]. [PPP: See the informers!]. Yes! How else do you think poaching has been reduced? [PPP: There are a lot of enforcement right now. A lot! It's very bad." PPPs

8.3.3 Bushmeat to Elephants

With some overlaps to the formerly discussed recruitment and the motivations (Ch.7), this sub-theme relates to the progression from bushmeat to SIMs through the guidance of professional fences or *fundis:*

"I started as a carrier and then later-later I started killing the deer…and what-and-what…now when the fundi started failing-failing I don't know what was wrong with him…[the boss said] *'that young guy there he is working hard, come now give him* [the gun]*, let him try'. Ehhe, that's when I started shooting."* PPP

The same guidance from fences and thieves can be found for SGMs (Ch.4; see also Moneron, Armstrong & Newton, 2020).

Poaching for bushmeat is more common and widely accepted, as evidenced by the PPP's willingness to admit their involvement (Section 8.1). Consequently, rural fences, transporters, or even *fundis* looking to recruit their supporting staff may visit a village under the pretence of first purchasing or poaching bushmeat before progressing the conversation to elephants and ivory.

Secondly, bushmeat poachers have the knowledge to adapt to ivory theft (the logistics, terrain, herd, and ranger movement), making them suitable for recruitment by assisting them with the skills needed for elephant poaching or relying on them as knowledgeable guides. Recruitment into organised crime dependent on exploitable skills is acknowledged in existing literature (van Koppen et al., 2010; van Koppen & de Poot, 2013).

The data evidence that illegal bushmeat hunting, possibly during ivory poaching, could serve as the gateway crime to SIMs (Mungan, 2017).

8.3.4 Enticement and Maintained Participation

This sub-theme robustly overlaps the motives in Chapter 7 and pertains to the intermediaries, rural fences and the *fundis'* deliberate enticement during recruitment, relying on rural poverty and the allure of wealth in SIMs:

> *"…there used to be a bar just over there, so when they* [recruiters] *reached here, they used to drink a lot of beer. They were spending carelessly. So now, when you are looking at that, he says: 'Do you also want such wealth? Why don't all of us go together?' Ah! So now you see how people can have fun when they are doing something bad. If I got that money, that would be more than enough. So, already that does what? [MR. S: Entices]. Ehhe!* PPP

Recruiters' flaunting of money in the villages draws some people in to envisage acquiring the same wealth through SIMs. Fences, intermediaries, rural fences and fundis can use this overlap between motive and recruitment techniques to lure in other individuals in SIMs.

One PPP further elaborated on how a fence enticed them into transporting illegal ivory across borders and maintained their willingness to participate in SIMs:

> *"Then he tells you, ' Do you want to stay in a hotel...? I am the sponsor. What do you want?' This is what they offer. They bring you women of all types. Every day, they change the women for you. They bring you even white women…. We drink like this; we do what and what-and-what. In the morning, he takes her, and then he comes back with a Ugandan and with another and so on like that."* PPP

Such techniques are similar to those used by narcotraffickers recruiting in impoverished areas (Meráz García, 2006). It is vital to consider here that deliberate enticement is only applied to those with some aptitude and promise of being successful in SIMs. Otherwise, such recruitment would remain a wasted resource incurred by the recruiter. However, once payment is received and enticement techniques have been experienced, some individuals may be motivated to seek re-employment by actively searching for opportunities.

Alternatively, an experienced fundi or transporter may be lost to competing fences (or their intermediaries) capable of offering greater monetary returns or enticing factors (or even possibly guaranteed assistance upon arrest). To prevent the loss of a capable operator to a competitor, the recruiters make drastic efforts to ensure their *fundi*'s loyalty, as one *fundi* explains:

> *"…he sent a car and took your family till the hospital. They are served nicely and with respect. So, therefore, you find that even if he doesn't reach that level* [that others can pay you], *to match the goodness with which he treats you, you see that it's better if I work with him only. You see?"* PPP

Urban and rural fences may adopt similar practices to ensure their transporter's loyalty, shifting the illicit market to a more organised chain of transactions from poacher to fence (Sutton, 1998).

As aforementioned, enticement during recruitment could involve minimising the operators' risks by providing: monetary compensation for their family while incarcerated; bail money; bribes paid through corrupt channels to influence legal proceedings or lower prison sentences; or wealth to ensure their status as *farro* in prison (Section 7.2.4).

The bosses can also entice recruitment and ensure ongoing participation by entrusting new capable recruits with more responsibilities, such as international business ventures, creating the illusion of progressing up the criminal ladder (see also Adler, 1985; Murphy, Waldorf & Reinarman, 1990). The following quote datum evidences this practice:

> *"…he had plans in place to go to South Africa. But then his network… changed his route to Congo…he was made the head poacher of the zones of Arusha–Mara...you can tell that he has been given some benefits…which only the head poachers of the zones have."* RP

Recruitment and retention depend on the fence's monetary resources, social network, and access to corrupt channels.

8.3.5 Family Business

Sutton (1998) found that residential fences may rely on family relations to recruit thieves. This kinship-recruitment complex is also observed in mafia organisations (Albini, 1971; Campana & Varese, 2013; Meneghini et al., 2021) and evidenced for SIMs in the following data:

> *"…the people of Kuria that have family in the bush…they are* told [by relatives in the city] *that you can get a lot of money and what and what if you bring ivory there.…"* PP
>
> *"…there was one boss* [fundi-fence] *who followed me till here…. There came one older man. They have all passed away now. He said: 'This man he married my daughter…I request you to hear him out…he is looking for a fundi.' So, I 'Okay, tell him to come tomorrow….' We did the discussions, and they took me from here. He came till here, and he called his relative…."* PP

The data from a PPP, corroborated by a PP, suggested that transporters and rural fences rely on their family in rural areas to vouch for their character and recruit *fundis.* Alternatively, they may recruit directly from their family, establishing a family business.

What is also registered in mafia and prostitution markets is the increased possibility of recruitment through being the child of a person already involved in crime (Kennedy et al.,

2007; van Dijk, Kleemans & Eichelsheim, 2019). If taken in its broadest sense, this recruitment manner is also observed in SIMs and relates to the idea of poacher families voiced by enforcement participants.

8.3.6 Foreign Operators

The data evidences the role of foreign operators in Tanzanian SIMs as fences, shooters, or transporter and their recruitment process, dependent on local hosts and intermediaries for guidance and to ensure their authenticity in new networks.

Foreign fences arrive in Tanzania under the pretence of conducting legitimate businesses, possibly using this legitimate structure as a front for their involvement in SIMs. This is similar to the findings of the MRA (Ch.4). Moreover, the data informs that individuals from neighbouring countries arrive in Tanzania to secure employment as intermediaries in the SIMs. However, they are also dependent on local Tanzanian hosts. The participants provided insights into the foreign operators' countries of origin, as presented in Table 24, with the following supporting quotes.

Table 24: *Foreign operators' countries of origin*

Country	Sample	Supporting quote
Burundi	RP	*"You can even find people from Burundi even till Rwanda…or if they are Tanzanian, they come from Kigoma* [bordering Burundi]*…these outsiders…are received and hosted like guests while they plan on how to execute their kill…."*
Rwanda & Uganda	PP	*"…you will find many dealers are foreigners…from neighbouring countries like Uganda, Rwanda and Burundi."*
Somalia	PPP	*"During when I started to drop* [elephants], *there were people… Eh, I can't give you names, but now they have moved…because of deportation, meaning that they weren't from Tanzania…*[they were from] *Somalia, passing through Kenya."*
Kenya	PP	*"There was one case I experienced…it was two citizens of Kenya."*
Congo	RP	*"…we caught…a Congo national."*
China	PPP	*"Ahah, these Chinese, they were the rich that we would take it to. They now* [Somalians and Tanzanian-Arabs] *were the ones taking the benefits assistance from the Chinese* [as intermediaries].*"*
Zimbabwe	RP	*"…a Tanzanian is being used by…a person from Zimbabwe,* [he] *comes to take it from this country knowing from Zimbabwe he will transport them to China."*

The data suggest that certain locations in Tanzania are more likely to have foreign intermediates from neighbouring countries. However, areas with robust local populations surrounding PA may have more Tanzanian *fundis* and intermediaries, while their supportive foreign fences operate in cities.

The quotes evidence the involvement of diverse foreign operators, further illuminating the vital role of a local host and the importance of considering the regional spill-over of SIMs that could benefit from a regional MRA in future research. It is vital to note that Tanzanian transporters and *fundis* also operate in neighbouring countries, as evidenced in Section 8.1.

8.3.7 A Note on Recruitment by the Market and Critical Reflections

Recruitment by an existing market pertains to theft from naturally dead elephants. The existing market drives individuals to incur the risks of participating in SIMs for lower returns due to their sale as outsiders to the market. Market recruitment could also entice opportunistic and corrupt enforcement or government officials for self-employment into SIMs.

Some prevention strategies may include raising awareness of the recruitment process coupled with the penal sanctions for operating in SIMs and detailing exploitation and ill-treatment by manipulative recruiters. In addition to providing legal income generation opportunities using the infrastructure of tourism and farming (Ch.12).

As the data suggests, bushmeat poaching is a gateway crime for SIMs, and ivory poachers may also conduct bushmeat poaching. Future studies should combine the findings from an MRA on bushmeat and commercial poaching for overlapping disruption strategies. However, the normalisation and acceptability of bushmeat poaching will be challenging to address through policy and must be carefully considered, learning from the colonial criminalisation of local practices.

8.4 Theme 4: Supplies for Poaching Team

> *"One does not make a shield on the battlefield."* Malawian Proverb

Planning an elephant poaching expedition includes organising a crime team and their supplies to subsist in the bush. The latter is crucial as expeditions can last anywhere from a day to a few months (Ch.2 & 9). This theme explores the minutia of this planning process to explore market disruption. The sub-themes are founded by the following checklist presented by a *fundi*:

> *"You, the fundi, find the porters, and right there and then, you, the fundi, you must perceive the gun, what kind that you are going to go and use…calculating the number of bullets. And then for the amount of time you will stay, what amount of flour you will need. Oil, together with salt and, if it is the rainy season, the groundsheet, for the purpose of constructing a tent. Ehhe. That's it. Once the equipment has been completed, that's it, you the fundi, you have an advance* [payment]*, you cannot leave without leaving nothing at home."* PPP

8.4.1 Guns and Bullets

Guns and bullets are at the core of elephant poaching. As a result, this study unintentionally informed a brief but parallel MRA of illicit markets for firearms and ammunition used in SIMs. Some of these data are shared in Appendix 3, the remainder will be consolidated into a supporting article upon completing this thesis. The data on firearms with implications for the sale of ivory and the MRA are mentioned here. Thereafter, the sub-theme outlines other weapons used to poach elephants.

Austin (2019) informs on the overlapping channels between small arms networks supplying SIMs and more organised firearms syndicates. The urban and the rural fence assist the fundi in attaining a gun and bullets (see also Stiles, 2011) to steal ivory-on-order. The same is found in this study's data concerning the procurement of illegal firearms by the Chinese Transnational Criminal Organisations (TCOs) in Tanzania (Alden & Harvey, 2021):

> *"Connections. If the Chinese* [fence] *is in town…his friend is also in town, he says he has spoken to me, he has given me a gun, and I will take it to those people, and those people will take it to those people until it kills. That's how it is."* PPP

This is best understood in two parts. Firstly, there is consensus in all sample groups that the fence organises the delivery of guns and bullets dependent on premeditated negotiations regarding which firearms are suitable to the *fundi* and the costs to be deducted when the ivory is delivered:

> *"You come, and you have a conversation: 'Bwana, what gun do you use?' I will explain to you, and you will say: 'Ah! This one, I don't have access to it'. Or 'this I can, can you use it.' 'Okay, okay, bring it.'"* PPP

Alternatively, the urban fence can send money (via mobile money or the transporter) for the *fundi* to make their own purchase (possibly by travelling to neighbouring countries):

> *"…*[the fundis] *explained to me, they would be the ones that go and get* [the gun]…. *Others have left the village to go there and buy from Burundi."* OSP

As another alternative, an RP suggests that some shooters may have their own weapons but still rely on the sponsorship of bullets, as evidenced by a sting operation:

> *"In the matter of the bullets…. He told me that when you go sell that package, bring me bullets. So that means? [L: price?]. Ehhe, when I bring him the bullets, he will then reduce the price."* RP

Fences will remain close to their sponsorship to ensure their returns through the guard of weapons, who accounts for the number of bullets provided for the number of tusks returned. This layout is used to keep the thief entangled in fences employment:

> *"The Chinese say I sponsored you that one million for the gun and what, so now he* [takes] *a little bit off, a little bit…deliberately, so that…you do that work..."* PPP

SGMs in South Africa operate similarly, where leaders rely on drug debt (Huigen, 2021), but in this instance, it is the small arms and ammunition debt. Moreover, the data here highlights how the fences have come to be labelled as *sponsors* as they loan the resources needed for ivory theft. At this juncture, there are overlaps between SGMs in which a fence may sponsor the thief with information concerning household security systems (Ch.4).

As aforementioned, there are many complexities in understanding the price of ivory (Stiles, Martin & Vigne, 2011). This study identifies sponsorship of firearms and other supplies to impact the understanding of the price of ivory:

> *"… some of the money will also go to the person, who maybe hired them the gun…the commission for the gun, so the amount of money they get is very low."* OSP

These are often overlooked influences on the price and suggest the importance of the MRA in clarifying and fine-tuning the dynamics of an illicit market, including converging markets. These insights further stress the need to understand the relations between fences, intermediaries and shooters and the markets for firearms, which may be integral to mitigating SIMs.

8.4.2 Equipment

Table 25 presents a list of equipment needed by poaching teams and is followed by a discussion regarding these items.

Table 25: *Supplies for ivory poaching – General equipment*

Sample	**Equipment**	**Supporting quote**
PPP	Groundsheet	See Section 8.4 checklist
PPP	Plastic bags	*"…you buy carrier bags, and you lay them down."*
PP	Axe	*"They leave home with their axes…they travel with them."*
OSP	Rope	*"The rope is for carrying because after they kill, they need to tie the meat and carry it."*
PPP	Matchbox	*"You also have a matchbox [L: A must?]. Yeah, a must, and that is all."*
RP	Shoes	*"The Maasai ones. That is the one they wear because, with those shoes, they can walk through the water…without having to remove his shoes…or Caterpillars* [sic]*…he cuts the tyre of a car and then makes strong shoes and walks with them. They cannot walk without shoes."*
RP	Torch	*"We saw a torch since it was already night then. They don't work without a torch."*
PPP	Mobile phone	*"On the phone! Ehhe, the signal is there. The network is everywhere."*

The checklist in Section 8.4 mentions a groundsheet during the rainy seasons. However, other participants did not corroborate this, suggesting that groundsheets are a luxury taken when possible, or alternatively, plastic bags are used. Other mentioned equipment includes matchboxes and mobile phones (Section 8.4.3). Axes are vital to poaching expeditions following guns and bullets as they are used to extract the ivory detailed in Chapter 9. The wire or rope is especially needed when team members are paid in meat and must transport it to the villages.

Although the literature on urban criminals may not focus on attire, it is integral in the context of rural crime. For illustration, during the American prohibition, moonshiners modified shoes by placing cow hooves on the sole to distract the enforcement from their tracks (Rare Historical Photos, 2014). A similar deception is noted by poachers in Nigeria (Tijani-Adenle, 2021). In the case of Tanzania, the poachers wear Masai shoes made from re-purposed car tyres, sometimes worn backwards to trick the enforcement in the wrong direction.

In addition, teams may invest in a torch to assist in night-time navigation. Even among urban residents, there is much speculation that poachers rely on flashlight communication. PPPs did not corroborate this. Instead, PPPs diverted from the question or suggested that the flashlights were used to stun and trap bushmeat. Therefore, the question remained of how the team communicates, leading to the insights of pre-decided signals and mobile phones discussed next.

8.4.3 Food and Water

"We returned to camp; we ate some food." PPP

The data on food, water and fire are many and are integral to survival in the bush, thus warranting a sub-theme. Table 26 presents these data, followed by a discussion thereafter.

Table 26: *Supplies for ivory poaching – Cooking equipment*

Equipment	Sample	Supporting quote
Water	PPP	*"Water? You find containers, and you collect water from the river. Yeah, you stay near the river."*
Stove	OSP	*"…they could go and stay for long because they go with a jiko* [stove run-on coals] *and flour and other things."*
Pots	PPP	*"…pots maybe four, and the gallons of water, that's it, the journey starts."*
Flour (maize meal)	PPP	*"…if you will meet with many herds, you could spend maybe two, three, four days, and that* [extra] *flour you just spill it around. If the elephant is being a problem, then you could stay and eat till that flour finishes."*
Other foods	APP	*"So even if you tell them to go do this job for me, they will ask you to find them flour, find them beans, find them tomatoes, for the purpose of going there to the bush and making camp. Once they get those things is when they will start doing business with you."*

These data concerning water suggest that the teams locate their camps near rivers, which elephant herds also frequent, allowing the team to track the elephants to a suitable location to hunt, with implications for enforcement patrols.

The extensive list of food and cooking equipment supports the claim of a cook in the team. Moreover, food supplies directly influence the *fundi's advance payment*, as the APP illuminates that the team will only proceed once the food supplies have been met. Additionally, the data-informed that even if food supplies are finished, the team will contact fences and family to re-stock, allowing them to continue poaching:

> *"…because if a person is there and he has run out of money…they have no food. So now, the boss is in Mwanza. He sends the money via Mpesa to the poacher. The poacher sends the money to his wife. The wife withdraws it and grinds the flour. Then she goes to the campsite to deliver it."* PPP

A direct link between the *fundi* and the transporter, or a fence, is vital in organised chains. This link has been further enabled by the recent developments in mobile money (Ch.10) and increased access to mobile networks in rural areas due to tourism. A double-edged sword with unintended consequences influencing arrest and the execution of ivory theft in PAs. The data informs that the teams' families may be informed of the location of the camp to allow the delivery of supplies:

"…even the wife can participate in bringing food…they have signals…stuff, uh, hanging in the trees…or like to peel the tree [L: like remove the bark?] Remove the bark of the tree, yes." OSP

"If the food finishes, you have a phone. You make a call, it is brought to the border [of the PA], *and then it is taken to the camp at night* [by the team]*."* PPP

Enforcement officials could use this information to track poacher camps or, should the opportunity present itself, rely on family or friends for information on poaching expeditions.

8.4.4 Local Oils and Medicines

This study informed that local oils and medicines (akin to a first aid kit) must be sourced before a team can poach. These insights are shared in Table 27:

Table 27: *Supplies for ivory poaching – Local oils and medicines*

Medicine or oils	**Sample**	**Supporting quote**
Medicine	PPP	*"Also, I have already been bitten by a snake twice. But I was saved from dying because I had some medicines. If you want to go to the bush, one, always take some medicines—these local ones."*
Oils	PPP	*"…you know us, humans, we have different smells…if I take that animal oil…apply it in your hair, the whole body…then, if it is from the zebra if you stand even amongst the elephant…he will think it's a zebra."*
Concoctions for luck	PPP	*"See, people use a medicine, the local one; therefore, each person shows their ability to thieve over there now. If he sees him* [the elephant], *he closes him using the medicine. Something you will never know…you meet and shoot, they don't die…but if he* [with the medicine] *meets with them, he hits it, and it dies, it dies, until he has enough load. You, you return home empty-handed! [laughs]"*

Chapter 2 details the historical reliance on witchdoctors or guild leaders to guarantee successful hunts. This study suggests the same for contemporary poaching with implications for disruption. Local medicines believed to be lifesaving and oils used to disguise human scent (allowing poachers to target elephants from closer range to ensure a successful hunt with limited bullets) may be essential to poaching expeditions. This suggests that disrupting local *medicine markets* and the poachers' solid beliefs in these practices may increase perceived risks for those unable to access them. However, when questioned further on these markets, participants remained ambiguous, avoided the question, or, in one instance, deflected to inform that rangers also have such *medicines*:

> *"Okay, these medicines, you know – [PPP: they are there]. There are. But you know what, the enforcement also has their medication to get promoted."* PPPs

There appeared to be a level of secrecy or hesitation in sharing information on this topic. There is scope for a longer MRA on the illegal flora and fauna used in local oils and medicine with implications for SIMs. However, this would require an expert in local medicines who can direct the questions to how they are made and acquired for SIMs.

8.4.5 Critical Reflections on Supplies for Poaching

The data in *Theme four* informs the following market disruption strategies for SIMs:

- Disrupting the illegal firearms and ammunition market may, in turn, disrupt SIMs but will necessitate vigorous considerations of crime displacement.
- Training enforcement in financial forensics to trace mobile money, leading to the arrest of established transporters and fences.
- The disruption of local medicine and oil markets may, in turn, disrupt SIMs.
- Limited ammunition influences how the fundi chooses target elephants. This informs the RCP and which target selection acronym suits ivory theft. This, in turn, informs new avenues for market disruption discussed in Chapter 11.

A *fundi* cannot fully preconceive the amount of supplies needed, as this depends on the amount of time the team spends tracking the right opportunities to poach (elephants with the needed tusk size, the right environment ensuring a successful shot and the absence of guardians). However, with access to mobile phones, the risk of modern poaching is much lower.

8.5 Concluding Remarks on Chapter 8

Chapter 8 informs how intermediaries, shooters and supporting staff are recruited, the details of each team member's role and the supplies and planning needed before poaching elephants. This level of minutia is essential, especially when applying the MRA and tailoring local prevention tactics for Tanzanian SIMs. The next chapter explores the chain of transactions to further insight prevention tactics as the poachers armed with their supplies proceed to the actual theft of ivory:

> *"…when it reaches roughly 7pm-darkness, your prompt to send the supplies to the areas around the fields."* PPP

Chapter 9: Chain of Transactions Part 1 – In the Bush

Evidently, the start-up costs and planning for ivory poaching are complicated and operationalised through organised and disorganised crime channels (Titeca, 2019; Wyatt, van Ulm, Nurse, 2020).

To provide a coherent breakdown of the processes between supply and demand within Tanzania, Chapters 9 and 10 rely on Sutton's (2010) *permutator* of the chain of transactions (Ch.4 & Figure 7). This is also understood as *Theft*, *Conceal, Disguise, Market,* and *Disposal*. It is essential to reiterate that this study extends to the disposal of ivory up to export from Tanzania, thus omitting end-consumers (Ch.2). As this research is focused on Tanzania, it could not access end-consumers based internationally. However, this research does focus on intermediary buyers of ivory in Tanzania who are often not consumers of ivory. It is vital to note that the MRA does not simply focus on end-consumer approaches but aims to address the entire chain of transactions from theft to trade and any repetitions of the permutator blocks between that movement.

Chapters 9 and 10 address the knowledge gap in the chain as limited studies focus on the demand and supply of elephant ivory within Tanzania (Ch.2), with much of the research focused on the export of illegal wildlife from a regional perspective encompassing the horn of Africa and forward to transit and consumer countries (Ch.2).

Chapter 9 explains how ivory is moved from the elephant to the outskirts of the PAs, focusing on *Theft* and *Concealment* (Figure 20). *Theme one* explores how the poaching teams enter the bush and locate the elephants, and *Theme two* presents how the elephant is poached, and the ivory is extracted.

9.1 Theme 1: Theft – How is the ivory *stolen?*

This theme follows directly after recruitment and the organisation of supplies (Ch.8 & 10), to entering the PAs to poach ivory, drawing parallels with USGs where possible.

9.1.1 Entering and Staying

> *"But elephant ivory means that if you haven't found the elephant, you have to keep on staying in the park, right?"* PPP

Similar to the findings in SGMs (Sutton, 1998; Ch.4), poaching teams will travel to the outskirts of the bush either on foot or using personal transportation, including bicycles or donkeys, to assist in carrying the supplies. When entering the PAs, the team will travel on foot, leaving their transportation on the outskirts. The teams enter the parks at night when ranger activity is limited. Either the *fundi* or the local host guides the logistics and navigation, relying on vital information, including the seasonal (Table 28) and daily (Table 29) movements of elephants

and rangers. This then informs how long a team may spend poaching (also influenced by supplies – Ch.8).

9.1.1.1 The Season

Seasonal variability is not limited to wildlife crime as it pertains to Western urban crimes through seasonal daylight (Burt, 1925). The season directly influences the team's decision-making, as presented in Table 28.

Table 28: *Seasonal Poaching Activities*

Season	Sample	Supporting quote
Dry	PPP	*"…if you walk during the dry season when there is no rain, there isn't water in many places. Therefore, in order to find elephants, you find them by following the river…."*
Dry	PPPs	*"…because we were born here, so we understand that during this period…end of the fourth month, maybe the 30th, to the fifth month reaching the date of second…we will meet with these animals. We go… [PPP: They* [the animals] *have a schedule]."*
Wet	RP	*"They observe the climate conditions to support them…they abstained from poaching during the dry season because they know it is easier for rangers to advance and pursue them with cars. But if it rains and they know that this southern part of Serengeti…black cotton soil…it becomes very sticky and muddy…you cannot pass with a car, they know* [the rangers] *are bound to get stuck at some point…."*

Between May and July, the dry season is favoured for bushmeat poaching and elephant tracking, as the shooter can follow the limited water sources (see also Holmern, Muya & Røskaft, 2007). The seasonal location of elephants is known to the poachers based on their observations and experiences attained through their upbringing within the PAs, almost presenting a *schedule* for poaching activities. Despite these advantages, the firmer roads of the dry seasons make it easier for rangers to cover large areas (see also Knapp, 2012; Maingi et al., 2012).

There is a tangible benefit for poachers in the wet season when whole areas are inaccessible by car. Understanding the changes in elephants' seasonal behaviour (or changes in behaviour due to poaching Ch.2) is an aspect that has received considerable research (Gara et al., 2020; Snyder et al., 2019). This may provide opportunities for protection, especially through CPT (Ch.3 & 12; see also Cowan et al., 2020; Maingi et al., 2012) and planned interception by enforcement.

Analysis of these data has raised further questions, which could provide insight into seasonal poaching:

1. With the established link between poachers and seasonal income through farming (Ch.7), do they refrain from poaching during harvest seasons?
2. Does the peak tourist season impact the team's activity?
3. Is the dry season ever too hot for poachers, or is the wet season ever too wet to travel? If so, could weather predictions be used to estimate poacher activity levels or hotspot areas?
4. Are enforcement groups making seasonal changes in response to poacher activity, and if not, what changes could be made?

Granting that such information and strategies may not be suited to all *MO.* Regardless of the season, some shooters may reduce their risks by accessing elephant location and ranger patrol information through corrupt individuals (Ch.3 & 7; see also Maingi et al., 2012):

> *"Sometimes you can also find that they communicate with…wildlife officers…that we saw elephants in some place they are there. [L: By phone?]. Yeah."* PPP

Committing more enforcement resources or different enforcement strategies to certain seasons could become a factor in itself that impacts poacher decision-making. Such possibilities illuminate the importance of a long-term MRA and an interagency model (Figure 4) to ensure that operation changes are addressed, and resources are not misplaced and wasted (Ch.4 & 12; see also Hough & Tilley, 1998).

9.1.1.2 The Time of Day

Three factors, shown in Table 29, were identified to determine the time of movement into, within and out of the parks (Ch.3; see also Cowan et al., 2020; Gara et al., 2020; Maingi et al., 2012; Mmahi & Usman, 2020):

Table 29: *Factors influencing entry times into PAs*

Factor	Sample	Supporting quote
Behaviour of animals	PPP	*"You can't cross* [the river] *in the afternoon. If you have tried very hard, maybe you cross at 8pm or 1am during the rainy season…. But normally, you go at 2am because that's when the hippos have come out* [to graze]."
	PPP	*"That is why a person from the village cannot be eaten by a lion or a leopard…. Because they know that at 2pm, the lions will be in this area, so I will pass here where there is nothing."*
Ranger schedule	PPP	*"It's night-time. You know the patrols of the rangers mostly if they have no information to go by 6pm, that's it. [L: They don't patrol at night?]. They don't."*
Village schedule	RP	*"That's why they go in secrecy…and they hurry to reach the villages during the night itself…. So, even normal citizens fail to identify them because, in the morning, they are different people. They are shocked when they find out."*

The poacher team's knowledge of the ranger patrols and daily activities influencing when the team enters and moves around the PAs are of importance in these data. Secondly, the behaviour of other animals (hippos in rivers) is often a factor that is easily overlooked when considering the influences on the decisions made during movement within the bush.

The data inform that the teams enter the PAs at night, any time after 7 pm, to avoid detection by both rangers and villagers (Section 8.5). There is no evidence of specific entry points, as the team poach in different regions. However, funnelled rational decisions are made when deciding where to enter the PAs. This decision depends on the risk (detection or attack by predators), effort (distance to the herds, passable routes, or access to water) and the probability of rewards from ivory (Ch.3; see also van Doormaal, Lemieux & Ruiter, 2018 for rhino poaching).

The data supports that poachers adjust their activities influenced by the season, enforcement activity, and daily village life. The preferred options are the wet season with nighttime entry and exit, while movement in the bush depends on other animal behaviours. Alternatively, the team can manipulate their successful entry and route to target elephants without the presence of a guardian through corrupt channels. However, access to a suitable target is not always guaranteed upon successful entry and can depend on *"luck"* as elephants constantly move, covering large distances, as discussed next.

9.1.1.3 Time Spent in the Bush

> *"You can stay even up to three or four months. [L: Oh, really!] [All laugh] Yes!"* PPPs

Chapter 8 indicates that poacher teams are generally self-sufficient once in the bush, and in many cases, poaching teams are willing to remain in the bush until they find elephants or are caught by rangers.

The data suggest that poachers can spend between four months to just one or five days, depending on chancing upon target elephants constantly moving. However, the season is potentially a constant influence that may determine the amount of time spent in the bush:

> *"…but during the rainy season, you take a longer amount of time. You can stay even a month, different than the dry season because there are more animals."* PPP

The data informs that poachers spend longer during the wet season, targeting more elephants. This may be because elephants gather in larger groups and interact more socially with breeding herds during the rains due to abundant food and water. In the dry season, they function in smaller groups to avoid the over-exploitation of limited resources. This, in conjunction with the lower risk of arrest for poachers in the wet season, as rangers are unable to access certain areas, informs the RAT problem-analysis triangle via seasonal influences (Ch.3).

Although, of note in these data is an acknowledgement by a PPP that elephant herds have moved further into PAs (away from the buffer zones) to avoid increased poaching.

> *"And after poaching increased, the animals ran away to the reserves and PAs of faraway. Therefore, it was a problem to get them."* PPP

This is similar to the historical outcome of over hunting detailed in Chapter 2 and dictates that the teams must incur increased risks in national parks, venture further, and need more time to execute the theft, either by chancing upon an elephant or through manipulated opportunities through corrupt channels. The influence of this change in elephant behaviour on poaching necessitates further and constant research.

It is feasible for poacher teams to maintain this capability for several months, possibly using it to limit the impact of crime prevention strategies. Nonetheless, the information provided here could inform future RAT and CPT prevention (Ch.3 & 12).

9.1.2 Shooting: Time, Target and Location

Although the team travels at night, the killing can occur in the daytime as *"the park is so big, and even if they do it in the day, no one will see them"* (OSP). A PPP corroborates that "*to hunt is in the afternoon*", and an RP details this further to inform that:

> *"…most of the time when they kill an elephant, it is in the afternoon between 4pm and 6pm evening, near the river.... That is when the elephants like to walk about their area and go drink water. That's it."* RP

Conversely, rangers (n=6) suggested that the kill typically takes place between 6:30pm–7pm when the *fundis* are aware that rangers are not listening for gunshots:

> *"In the afternoon, the process of listening during the lookout is really good.… They wait to do it in the evening because they know that we're at our substations. Starting from 7pm or 6:30pm…. So, by the time we get information and get to the crime scene, it's already dark, and they use the darkness to escape."* RP

Despite the two contrasting times provided in the data, it is evident that the kill takes place as elephants move towards water sources between 4pm and 7pm. The data may suggest two separate times as elephant behaviour is shifting towards night-time forage encouraged by poaching itself (Ch.2), as evidenced below:

> *"…there's also a change in elephant habit, ah they're, they're, becoming more nocturnal."* OSP

It is equally possible that the connection between poaching times and changes in elephant herd behaviour may be misplaced. It is, however, vital to acknowledge that supplementary data on elephant lifestyle theory (influenced by habitat, climate change and poaching) is

needed to accommodate the potential shift in elephant society and its impact on the team's *MO,* with implications for the MRA and SCP through the RAT (Ch.3).

These data can conclude that poachers operate at specific times, with poaching occurring between 4pm and 7pm, and that pre- and post-kill movement to entry and exit points most often occur at night.

Contrary to popular perceptions of shooting, the datum shows that the *fundi* can move close to the elephant based on the wind direction, elephant eyesight and local oils (Ch.8), in turn ensuring limited bullets result in successful killings:

> *"And they chase him till closer…the elephant has poor sight…if you are even 11 meters, he can't see you..."* PPP

As such, the shooter can assess the amount of ivory an elephant is *"wearing"* and decide if they are suitable for their needs:

> *"If they are wearing what could be a lot of kilos…in one herd there are four, you hit those four. All of them…. If they have enough kilos that are fine for you, you take them."* PPP

The quote above suggests there are some calculations to ensure an adequate amount of ivory, or a fence may have requested a specific number of kilograms or length, necessitating target selection by the *fundi.* One PPP elaborates further to suggest that fences have a grade for the ivory and that anything below ten kilograms does not meet the requirement:

> *"…because these buyers they have a grade if you take…small-small ones, they can't buy. Therefore, it becomes a big loss to you…they order starting from ten* [kilograms] *going forward, ehhe."* PPP

Paradoxically, this is similar to legal guidelines for historical hunters under colonial conventions (Ch.2). It remains unclear why the fences have this requirement, but it is likely to do with international demand for more prominent tusks for carving (Ch.2).

Once the *fundi* has established that the elephant has enough ivory to warrant the limited supply of bullets, they assess the best possible manner to shoot the elephant. These decisions are dependent on the terrain, with a preference for *"areas that have a lot of trees because it is easier for* [the poachers] *to hide…. In the grasslands and plains, it is harder"* (RP).

Although some existing literature reports on elephant poaching hotspots in Tanzania (Vira & Ewing, 2014) and that poachers will shoot close to exit points in Kenya (Maingi et al., 2012), this study cannot conclude on any hotspots or decisions to shoot within distance to exits. Instead, this study concludes that the team will operate where the right opportunity is available, with a possible preference for areas with high tree density. Hotspots*,* therefore, are locations where the elephant herds frequent, maybe close to surrounding villages as this is

where poacher teams enter and restock supplies, and should they chance upon a herd near their entry, they will commit the crime there:

> *"…you know why? Because animals migrate…if* the *animals are in the south. It's a must we go to a village in the south…if they come west, we go to a village there…we find the local host…. So how they move means we have to do what? Follow them."* PPP

As one RP summarises:

> *"Well, there are no specific places because elephants can be found anywhere, frequently, elephants can be found in Lunda* [Ruaha], *but that does not mean that you only go there* [to poach]*."* RP

How the *fundis* target their shot on an elephant(s) depends on their gun type, as shared in Appendix 3. However, what is evident within the explanations is the PPPs' shift in perception from anthropomorphism (Ch.7) to a lack of recognition of their understanding of the elephants' emotional awareness:

> *"SMG. It does, but only if you shoot many bullets–[everyone speaks at once]- you shoot rapid - [PPP: Rapid, ehhe!] - or you could shoot tak! Four or five* [bullets]*, for those that are experienced, you just shoot him!– [PPP: I'll shoot him in the heart. For sure! Or here in the side, that big part]. Therefore, you shoot-shoot that part until you remove the blood that comes out of there. You leave him. Then you go hit another."* PPPs

At this juncture, the shooters take a more technical approach in shooting the elephant from 11 meters away from where it is found, operating between 4pm and 7pm. Their decisions at that moment depend on the terrain, position of the elephants, their gun type, wind direction and distance from rangers monitoring gunshots, drifting away from anthropomorphic observations (Ch.7).

9.1.3 Other Methods of Ivory Poaching

Not all poachers will have access to guns. Therefore, they may rely on historical practices (Ch.2; Carrington, 1958; Janmart, 1952), such as using bows and arrows, spears, and pits, or the 'disabling' or immobilising technique focusing on the leg tendons, as found by this study. The self-explanatory data are presented in Table 30, and further illuminates a lack of acknowledgement of elephants' emotional intelligence by poachers during a kill.

Table 30: *Other methods of poaching elephants for SIMs*

Poaching technique	No. of mentions	Supporting quote
Bow and arrow	3 PPP 3 RP 1 OSP	*"It's a must that you are very close...you shoot him in the stomach, you leave him. You shoot him in the left. When the right leg remains behind, you will have arranged yourself on the right. You shoot him here in the stomach there! He can't see, and with an arrow."* PPP
Poisoned arrow	3 PPP 1 OSP 1 PP	*"…if the poison is lethal, one and a half kilometres or two, and he falls…you hit him there in the back* [referring to bulge]*! Because there is a lot of blood there…it's quick to travel through the blood."* PPP
Poisoned arrow trap	1 RP	*"…they set a trap in the path of an elephant…the poison arrow that has been tied to the trees strikes them…elephant dies…. But the majority of them use a gun."* RP
Poisoned crops general	1 PPP	*"And I also got the news that is unreliable…this medicine I have never previously participated with it. They used to put it on the food crops…and they cover it. See, an elephant has a big mouth like this, so he eats the whole thing. Ah!"* PPP
Battery acid in watermelon or pumpkin	3 PPP 5 RP	*"…water fruits like watermelon…[PPP: this acid used in batteries]. They pour it in there…. Once it burns, it destroys that stomach…. And he dies right that very minute…. This, this is really good though because there is no noise…once they kill him, they cut trees and cover him."* PPPs
Snare and spear	2 OSP	"*So, the elephant can drag the big tree while the wire* [snare] *is still on the foot…so what they do after…is they go with uh, the big spear…try to injure the elephant that way."* OSP
Pit trap	1 PP 2 PPP	*"…they dig big holes, so when the elephant comes, it falls in."* PP

The PPPs explicitly state that poisoned fruit and vegetables are used to avoid detection through gunshot, giving rise to the following questions: does the ranger identify deliberate poisoning, or would this be reported as natural death; if so, how does this impact the dark numbers of the ivory trade; how does this influence opportunist poachers; and are poisoned remains (of produce and elephants) collected or consumed by other animals? Of note is that in some instances, poisoning of crops may be used in retaliation for HEC, rather than ivory theft, where the tusks are left intact for collection by rangers, as discussed in Chapter 7.

Bows and arrows (poisoned or not) are cost and risk-effective when compared to guns and bullets:

> *"So now, try and imagine, that year we started carrying, arrows were 500 TSh* [22 cents USD] *… Eh, they have increased it a lot… maybe he can get for 1000 TSh* [43 cents USD] *now."* PPP

> *"The bad thing about the bush is that if you are found with an arrow and bow, it's not a problem. You are maybe taken to court, but if you are found…with a gun, then it's neither yours nor mine. Each to their own. Because to kill is to kill...ehhe! If you have a bow and arrow, ahh, he* [the ranger] *just chases you away, 'put that arrow down, put that arrow down.' He ties you in handcuffs, that's it…. But if you are caught with a gun –."* PPP

With a lower sentence during arrest, negligible risk of armed conflict, lower risk of detection void of gunfire, and cheap supplies ensuring a more significant profit margin, it may be possible that some ivory thieves may return to this traditional method.

Although the data are divided as two *fundis* denied the use of bow and arrow in contemporary poaching, suggesting that:

> *"Me, honestly, I just used guns. I have never used arrows, and I have no experience with them."* PPP

This denial suggests that perhaps only older poachers or newly trained users of bows and arrows can benefit from this option, further highlighting the importance of a *fundi'*s experience and known options during theft to ensure sufficient rather than optimal methods (Ch.3; Carrol & Weaver, 1986).

Overlapping the deliberate use of pit traps and snares for elephant poaching is unplanned opportunist ivory theft. Also understood as the by-catch of elephant(s) by bushmeat poachers who rely on ''indiscriminate traps'' (Becker et al., 2013; South & Wyatt, 2011), best explained by a PPP as an elephant's *bad luck* (also voiced by two other PPPs):

> *"You take a hoe. We go and dig a pit…then we block here, we block here* [on the sides]*, then we chase the animals so that when they pass that way, they go till they fill the pit till they reach the top of the pit…. Ah! Elephant! Ehhe, if he is carrying bad luck and he enters, then yeah, him too."* PPP

When an elephant is unintentionally trapped in a snare, the poaching team may track the injured elephant to secure the ivory. Although the elephants may manage to walk a longer distance than the poacher can follow.

With both outcomes of by-catch, bushmeat poachers may store the tusks until they find a marketer or buyer. Alternatively, the opportunists may already know someone in the SIM and take the tusks directly to them or tell them the trapped or injured elephant's location:

> *"Ehhe. And those* [people with tusks] *could also come directly to me,* [they] *know that 'this guy he knows people, so it would be good to take it to him.' And you, once you have got the information, it's easy for you to order it. 'Tell that person to come'".* PPP

Despite the opportunity, some individuals may be unable to connect to SIMs or lack the confidence to participate in high-risk illegal sales. Once the elephant is killed, intentionally or accidentally, using traditional hunting practices or new-age use of battery acid or bullets, the extraction process must begin immediately to limit the team's presence at the crime scene, however, with some liminality, as discussed next.

9.1.4 After the Kill

Once the elephant has been shot, the *fundi* must first run to safety before returning with the extractors to claim their trophies:

> *"If you hit* [an elephant]*, it is normal for them to charge you if they have seen you. If they have not seen you, they use smell to find you…. You cannot shoot an elephant here and then stand there. You must shift…and assess the safety...but to be able to kill four elephants in one group is not easy…."* PPP

Although the *fundi* may shift after a shot, they may take the opportunity to shoot the concerned herd caring for their injured member. This decision is made promptly by the *fundi* upon assessment of the risks in their immediate situation, dependent on their experience (Ch.3). However, in instances where the shooter misses, the outcome can be vastly different:

> *"*[The elephant] *is not dying. So now, we had to start hitting with an axe on this leg…he manoeuvres his eyes…chameleon-like…when you move here…he has turned his eyes…and whips his tail…those hairs hit you in the eye. Ah! I fell...I started* [crawling] *in reverse. He decided to step. That's when a person came and pulled me. But now, that feeling now! We started to ambush till we cut that tail so that only the stub is left, and it's playing around like this [gestures side-to-side*], *that's when he cut the leg, and he fell."* PPP

The above quote gives insights into the risks involved and the participant's reaction to a missed shot as perceiving the elephant as a provoking opponent. It is possible to speculate here on the retaliation as thrill-seeking. However, it remains unclear if a *fundi* would confront an elephant for the sole purpose of thrill-seeking rather than the rewards from ivory.

Post-kill, the *fundi'*s responsibility shifts from shooter to guard the team during extraction against rangers or predatory animals. The *fundi* calculate the most beneficial hiding position to ambush incoming rangers, switching from big game rifles to assault rifles or pistols for self-defence. If the *fundi* is operating with family members, they are instigated to take their responsibility incredibly seriously, as expressed by a PPP:

> *"You know, in life, it's like this, the poachers they like to hunt with their family and friends, even with his younger brother...they rely on each other…. So, once I kill an elephant, I go guard because if the rangers see them, they will kill you, my family…. He* [the fundi] *would be a very dangerous guard. He would meet* [the rangers] *with a fighting spirit…."* PPP

It is apparent why ivory poaching must take place in teams, necessitating at least a minimum of two members (Section 8.2.1). Ranger field operations may benefit from future research focused on the decisions made by the *fundi* when planning the ambush. This transcription also brings to the forefront the complexities in recruitment and using personal networks to draft family members into SIM, men for poaching and women to restock supplies (Ch.8). The following section details the extraction process while the shooter remains on guard.

9.1.5 Extracting

> *"Once he has shot him with a gun, and he falls over, they have other things. They have shokas. Are you familiar with shokas?"* RP

The primary goal of the extractors hired by the *fundi* is to ensure quick removal with minor damage to the tusks. In response, this sub-theme focuses on the tools (Table 31), methods and time (Table 32) taken to remove the tusks by the hired extractors.

Table 31: *Tools used for ivory extraction*

Tool	No. of mentions	Supporting quote
Axe [shoka] accompanied by a knife	35	*"Our local ones, they remove with an axe. Axe and a knife, that's it!"* PPP
Panga/ machete	10	*"These things it's a must that they accompany each other…. They start by cutting with the axe, then finish…with the machete."* RP
Organic solutions and chemical acid	9	*"I was in prison…with people there for the same wrongdoings as mine…. They said: 'ah, we have this medicine…it's a tobacco from rich people that has sat* [fermented]…you *grind that up, and you apply it…the meat falls off…it rots…they said '…we suffer using the axe because of that* [medicine] *is just a very few minutes.'"* PPP
		"…acid that is, is very quality…. The meat gets spoilt, and then they pull it." PPP
Chainsaw	6	*"…a lot of them use chainsaws just because it goes very quickly…very effectively. But they don't do that very much in Tanzania just because it's loud."* OSP
Saw	5	*"But there are others that use saws"* PPP
Natural decay	1	*"[L: Do they use any chemical to decay the meat?] No. Maybe…poisoned arrow…. If he hits him today, he follows to collect from* [the elephant]...[that] *has decayed, he removes those teeth, without using even an axe."* PPP

The mention of plant-based or acid solutions suggests a shift in *MO* to reduce the time spent at the crime scene. Increased use of this method has been facilitated by an exchange of

information in prison (Table 30). However, the use of the tobacco-based solution remains unclear as the participant could not elaborate further. Even after requesting my supportive network to elaborate, they too were perplexed with the feedback suggesting that:

- The solution is made from an expensive tobacco plant that grows in a circular or ball-like formation and is often used by the rich. This is then turned into a solution.
- The tobacco is placed or found in tree bark, where it is left to ferment.
- The participant is referring to the sap of a tobacco plant.
- An indigenous plant similar to the tobacco plant is ground into a paste.

The datum remains unclear and necessitates a long-term MRA with established participant-researcher communication to better understand the process of plant-based solutions in extractions.

The use of chainsaws is limited and pertains to organised chains where fences sponsor expensive equipment. However, as the OSP explains, in Tanzania, this method is generally not favoured due to increased risks of detection. On the other hand, using a handheld saw is more common but less common than using axes accompanied by a knife and/or panga (Table 31; see also Vira & Ewing, 2014). However, before the extractor can remove the tusks, they must first assess the *type* of elephant shot by the *fundi:*

> *"…those that are born, we call them long-head or short-head. That long-head it's long on the outside and long on the inside. You can see that line on the skin half is inside, half is outside, Half-for-half. Eh? [L: Ehhe]. Now…others who have it long on the outside…on the inside, it has only entered a little bit."* PPP

This influences the amount of time taken to extract the tusks with axes in addition to the *"diligence and performance* [of the extractor]. *Even now if we start writing, a person will write quickly, and he finishes. That very activity another person can write in many hours"* (PPP). Table 32 shows the participants' response on the amount of time taken to extract the ivory depended on the perceived risk of detection and potential conflict with rangers as one OSP sums up:

> *"It depends on how…limited in time they are if it's at night, if it's in the morning…, if it's close to a camp, if it's close to a ranger's post…."* OSP

Table 32: *Time taken to extract tusks*

Time taken	No. of mentions	Supporting quote
30 minutes	1 APP 1 OSP 3 RP	*"…it is very fast, very fast. Poachers don't take long…it can't be more than half an hour."* APP
20 Minutes	1 RP	*"…as in they are very fast… 20 minutes is a lot for them because they are scared to be caught!"* RP
15 minutes	3 PPP	*"But there were other executives [sic] who would remove it in 15 minutes. [L: Wha!]. Really. [L: Both?]. Both of them…. They were used to it...they used the young guys that would have strength! Hit the axe!* PPPs
10 Minutes	1 OSP 1 PP 1 RP	*"10 minutes or so, they finish and go. They don't stay for long. Unless they are hungry, then they will eat that carcass…cook that meat over the fire."* PP

Most PPPs inform that experienced extractors only require 15 minutes, whilst most other samples suggested twice as long. The process depends on the extractor's capabilities, but the overall data imply that it is quick to avoid detection.

The general extraction process involves removing "*that trunk, eh, once it has been removed from the front, it becomes easier to remove"* the tusks (PPP). The hand gesture made by most participants during this explanation is sliding the hand from the forehead to the side of the nose, indicating where the elephant meat is butchered, or, as one OSP explains best:

> *"'cause the root of the ivory goes up, so you cut just behind the eye. Boom! Ah, then you're left with the two tusks…with the top jaw…and you cut that in half, and you've got two pieces of ivory, and off you go. And that's your story 'cause there is very little meat around there. It's just cut through bone and honeycomb."* OSP

The tusks must be cleaned in the bush *"because then it isn't dry, the meat is still wet, so it's easier. Once it is dry, it is very hard now"* (PP) and can damage the tusks. The meat also adds weight, making it harder to transport the ivory. This process is corroborated by an RP and has implications for the SIMs permutator model (Ch.10) and crime prevention response (Ch.12):

> *"…they had run with it with the flesh still on it. So, they had to reduce…the weight of those tusks to make them less heavy. Yeah."* RP

It is possible that when the team is rushed or senses increased risks, they may take the tusks along with the attached meat to be cleaned later at a safer location. Where more considerable time pressures exist, part of the tusk may be left inside the cranium (Ch.2).

"…they cut…so that, that inside hole remains there. That is because of express [sic] so that we don't get caught there. [L: It's faster?]. Ehhe. [L: some of the tusk remains inside?]. Ehhe, it remains." PPP

Conversely, the data show that in some low-risk instances, the team may nourish and extract the meat for sale, especially if the supporting team members are paid in meat (Ch.8). In such outcomes, the shooter may or may not stand guard.

Upon completion of extraction, the team may still perceive risks, leading to the poisoning of the carcass or the surrounding areas *"so the vultures can't give them away."* (OSP) (see also Mmahi & Usman, 2020; Murn & Botha, 2018; Ogada, Botha & Shaw, 2016). Alternatively, one RP shares the processes of uncovering a camouflaged carcass:

"Uh, they don't put poison, no…they cover the body with grass on the carcass so that the vultures can't see it." RP

9.1.6 End Notes and Liminality After Extraction

So far, the data indicate:

- No entry or exit point is preferred. The team will enter from surrounding villages depending on the elephant herd movement.
- Entry time is dependent on ranger locations, the season, and village activity.
- Movement within the park is determined by ranger activity and other animal behaviour.
- The poacher moves close to target an elephant and determines the amount of ivory it is *wearing*.
- Once risks have been assessed, the *fundis* can kill multiple elephants.
- The elephant can be shot in numerous ways (dependent on wind, terrain, and the elephant's position; see Appendix 3). The *fundi* can also use a non-firearm-based method.
- The *fundi* become the team's guard while the extractors, using an axe and a knife/panga, remove the tusks in under 15 to 30 minutes, depending on the perceived risk.
- The carcass may be covered in poison or grass, or the meat may be extracted.

The decisions are rationally calculated, dependent on risk and effort, and the team arrives having planned their operations driven by the rewards provided by existing SIMs. Prolific *fundis* can decrease the risks and efforts of stealing ivory (e.g., mobile and manipulated opportunities by knowing ranger and elephant locations) while the returns from ivory sales remain high and encouraging.

Upon completion, with clean tusks, the team can either *"move away, and they don't set a camp"* (RP), or they can move away from the crime scene and wait to travel at night, especially if a river crossing is needed:

> *"Once they have shot and taken those tusks, they take it, they put it somewhere where they know. They wait…. When it reaches 7pm, they start walking."* PPP

The data provided in *Theme One* informs the first box concerning *theft* of the permutator model presented in Figure 19. It highlights the process of stealing ivory up to the point of successful extraction, summarised as entering, locating, poaching, and extracting – or by-catch ivory.

Figure 19: *Chain of transactions for SIMs – Theft*

At this pinnacle, it is vital to note that the *fundi* may have left the ivory carriers (if different individuals fulfil the carrier and extractor role) at the team's camp with only the extractor(s) accompanying the shooter. In this instance, the *fundi* and extractor(s) will have to transport the tusks to camp, after which the carriers will transport them out of the bush when enough load has been collected:

> *"So, when you* [the carrier] *reach the event's location, they tell you to rest here. They will leave some big people* [higher in the chain of power]…. *They go off to hunt there and bring the load. They hunt there and bring the load. Later, the day arrives when they have enough…that's when you start to return…they bring it to you there in the camp. You will carry it now from there till returning home."* PPP

At this pinnacle, the activities in the bush (theft) overlap with the following stages: concealing, transporting, stashing the ivory out of the bush, or delivering directly to a buyer.

9.2 Theme 2: Conceal, Stash and Transport

Having outlined how the ivory is stolen, the next consideration is how the extracted tusks are stored in the PAs first and then concealed and transported to storage locations or directly to the buyers.

9.2.1 Concealment

Concealment depends *"on the security of the situation. If they feel that they are safer, then they just carry them as they are. But if they feel some environment of a threat, then they will try and hide them"* (APP). The team conceals the ivory through packaging, where "the packaging depends on the environment they are exposed to" (RP) and the resources available. Additionally, ivory may be cut into pieces for concealment and more accessible transportation, or if instructed to do so by the fence.

Concealment takes place after the team carries the tusks *"away from the* [crime] *scene first, and then when they* [are at] *their own substation, in a cave, or a bush…."* (RP). Table 33 evidences the diverse types of concealment in the bush and the number of mentions in the data to determine the more common concealments.

Table 33: *Ivory Concealment in the Bush*

Concealment in bush	**No. of mentions**	**Supporting quote**
No concealment	1 APP 4 PPP 1 PP 2RP	*"*[If] *they're carrying it in plain sight…it means that they are confident in themselves and have a gun.... This then lets you know you need to approach them armed…."* RP
Sulphate bags/ polypropylene bags/cement bags	2 APP 1 PPP 1 PP 4 RP	*"…what they call viroba...those sacks so that…if anyone sees them, they would not immediately know what they are carrying."* RP
Jute sack	2 RP 1 PP	*"…because…it is easily movable…here in* [Serengeti]*, you will find it in the grain sacks."* RP
Cloth and plastic bag	1 RP	*"They…wrap it around a piece of cloth then put it in a plastic bag…. Or even in ordinary bags…."* RP
Trolly bag	1 PPP	*"I told you when they come, they cut-cut them…. Eh. You find a person is carrying 100 kilos in his bag or even 200...those bags you can drag down—those with tyres."* PPP
Bags general	1 OSP 1 PP 2 RP	*"…they were put in bags to disguise the smell…. You know the fresh tusk has a lot of smell."* PP
Elephant hide	1 PPP	*"…you can even just carry it as it is, using its hide."* PPP
Bush rope (made of grass)	1 RP	*"…they just tie it up with bush ropes and carry them just like that."* RP

The data implies that some operators may confidently and openly walk with the tusks on their person after poaching (similar to theft of urban stolen goods (Sutton, Schneider & Hetherington, 2001; Ch.4)), especially if armed. However, most of the data points to the use of concealment using different bags and sometimes cloth. These may also be used to mask the smell of freshly extracted tusks, conceivably guarding against predatory animals.

Sutton (1998) and Wright and Decker (1994) found similar responses as thieves preferred plastic bin bags, sheets and pillow covers from the victim's home or rucksacks and shopping bags to conceal USGs (Ch.4). This form of concealment proved helpful in blending in with other shoppers and citizens. Similarly, industrial bags and grain sacks are everyday sights in a rural farming environment, allowing the thieves to blend upon exit and potentially within the PAs, where tourists may perceive them as construction workers.

On the other hand, ivory may be cut into pieces, as voiced by eight participants:

> *"They cut-cut them* [into 30cm pieces]*, they become shorter, now they are piled up in the bags… They cut it there and there...in the bush."* PPP

This form of preparation for concealment often takes place away from the crime scene and sometimes at a chosen substation:

> *"…as we followed the footprints…we saw two people…about 800 meters from where the elephant was shot. They hid themselves and were nicely chopping the tusks so that they could carry it out."* RP

Alternatively, the tusks may be transported whole to avoid additional risks within the PAs, to access machinery and/or to allow the tusks to dry, as suggested by 12 participants:

> *"No, they carry them whole first…because they can't cut them right over there…they take those machines or the saws… Eh, they wait till the wet weight reduces."* RP

On the other hand, the PPPs offer that both options are possible as requested by the *fundi*:

> *"Ah, you carry it just like that. Eh, to cut it up? That only happens when that customer says so…'my carrier. I would like to request you to cut it up."* PPP

This divided explanation could suggest an ongoing change in the chain of transactions with implications for SCP and the transport process for international export (Ch.10).

9.2.2 Transport in the Bush

The data evidence changes in *MO* concerning the transport of ivory from the PAs:

> *"…*[the poachers] *have a lot more knowledge…. Today, he has advanced to go with a bicycle, a motorbike. Technology and experience have increased, and you can't catch them."* RP

When leaving the park with ivory, discretion is sometimes less of a concern, and the focus may be on speed through motorbikes (Ch.8 & 12). Wealthy fences sometimes sponsor these:

> *"You see, the ones that enter there with assistance* [from fences]*, they have a motorbike…. But for those that don't have any assistance, they travel by foot. There are shortcuts that only they know."* PP

Speculatively, there are several advantages to this option: (i) the team hands over the ivory to the driver, and if arrested, they can claim to be bushmeat poachers; (ii) if arrested, they have already demonstrated their value to the fence who may intervene in their arrest (Ch.7); and (iii), they can remain in the park to fulfil more orders. However, motorbikes are not the only mode of transport. Other options or a combination of options are shared in Table 34.

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Table 34: *Transportation of ivory from the bush to the outskirts of PAs*

Transport out of the bush	**No. of mentions**	**Supporting quote**
Motorbike	5 RP 3 APP 3 PPP 2 PP 1 OSP	*"…the motorbike doesn't need a road…it can pass anywhere. [PPP: Even through very narrow passages]."* PPPs
Donkey	4 PPP 2 RP	*"We don't really go in with a motorbike or a bicycle. We go in on foot, and we use a donkey for transportation. [L: Do you…leave him on the outskirts?] If he enters…the lion could kill it."* PPP
Bicycle	5 RP 1PPP 1 APP 1 OSP	*"So now, as they were roasting the meat…we caught* [the carriers]*…. But they said the fundi had gone outside…to find the bicycle that they had hidden* [when they entered]*."* RP
On Foot	Across all samples	*"They carry it using shoulders. Not the back. Whole. If it is big, then it is carried by two people. One goes in front, the other behind."* PPP

It is vital to reiterate that the motorbikes may be hired taxis (*boda bodas)*, presenting a further connection between SIMs and SGMs. In both markets, the driver may, or may not be aware of their participation in illegal operations (Ch.4 & 8).

Notably, the data evidence little mention of bicycles, with one PPP denying any use of bicycles or motorbikes. Instead, the data suggest transport on foot, sometimes including a donkey or motorbike for assistance. On the other hand, the enforcement responses identified bicycles as the primary transportation based on previous arrests, suggesting a slowly increasing use of logistical assistance.

Before concluding this sub-theme, it is essential to note the effort and risk faced by the carriers in transporting the ivory on foot, which may lead an outsider to question *whether it is worth the effort*:

> *"Eh! Crocodiles are dangerous, honestly. It's just God, to be honest…the water is till here* [waist]*…that hippopotamus came up [claps hand]…that load on your head, you let go! People are beginning to sink again until you get that load back."* PPP
>
> *"Ah! He* [snake] *got me good. I took the knife and [sawing gesture]. I carried on walking. I thought the foot would fall off!"* PPP

Respondents with experience as carriers claimed it was always worth it owing to the hardships of life (Ch.7). Despite the risks and efforts of the carrier, there are shifts in the theft of ivory

that are making the process potentially easier using skilled bicycle and motorbike riders. The carriers' potential crime displacement (if any) remains unclear.

Consequently, this study concludes that the transport process begins on foot from the carcass to the substation (Section 9.2) and on foot, bicycle, donkey, or motorbike thereafter. It is most likely that multiple modes of transport are used depending on the resources available, seasonal flooding of routes, risk assessment (concerning the sound of motorbikes) and the crime location in reference to where the motorbike, bicycles or donkeys are parked.

9.2.3 Stashing Guns and Ivory in the Bush

After transport from the elephant to a substation, it is possible that instead of transport, both guns and tusks may be stored in the bush –a favoured option when the team needs to re-assess their risks (for gun storage, see Appendix 3):

> *"No, they have to hide it…you cannot…finish killing an elephant and then say, I am going to head back home…while you are carrying tusks…they have to check the security of the environment. Not just the immediate environment where you have killed the elephant but even further away…then you come back for the tusks day after. And then you spy your way, where you know it's safe, and…take the tusks and go."* APP

In most cases, the ivory is buried, naked or concealed, as informed by four RPs, three APPs, two PPPs, and one OSP. When questioned further if any marking was used, the participants replied that the team *cannot forget,* and they relied on their knowledge and natural markers:

> *"No, they don't. They just remember important landmarks like hills…. They just know."* RP

Alternatively, one ranger elaborates that the team does not hide or camp far from the storage location, suggesting that it may not be difficult to remember where the ivory is stored:

> *"…they then find some hidden places…and set camp somewhere near the teeth…. They usually don't stay far from their prize…. They don't keep it at camp ever."* RP

There are some overlaps between SIMs and SGMs, as illicit goods are rarely dumped or given away. USGs may also be buried in public parks, allotments, or personal gardens, with a preference to stash in public areas (Stevenson & Forsythe, 1998; Sutton, 1998, p.108). In both market types, the operators remained confident that their stash would be safe in these locations, while the storage options limited their risk of arrest in possession of illegal goods. Nonetheless, preferring such options has resulted in the theft of the already stolen goods, resulting in disputes (Sutton, 1998; Sutton, Schneider & Hetherington, 2001).

Although the PAs are not a public space in the strictest sense, there is still the possibility that team members may steal another's stash, resulting in violent disputes and other harm (Appendix 3). Guns and ivory may rarely be abandoned when escaping enforcement:

> *"As in here, the gun you will throw, the tusk you will throw, the flour, the pots, you will throw all the things! [clicks tongue]. When the guards come…they carry the load, they speak into their radios…load everything, and they take it to the store."* PPP

Despite the evidence in favour of storage within PAs, a ranger suggested that they had never experienced this outcome:

> *"In the bush? No. Ahah. I have never…. They take them, and they leave. When they get home, they go, and they hide it."* RP

The participants may be divided in their experiences as different teams have varying *MO*. Accordingly, this study caters for all variations in Figure 19: kill, extract, transport to a substation or safe location to either clean the tusks of excess meat, conceal the tusks in bags, cut the tusks into pieces, or store the gun and ivory to re-assess the risks before transporting it out of the bush at night.

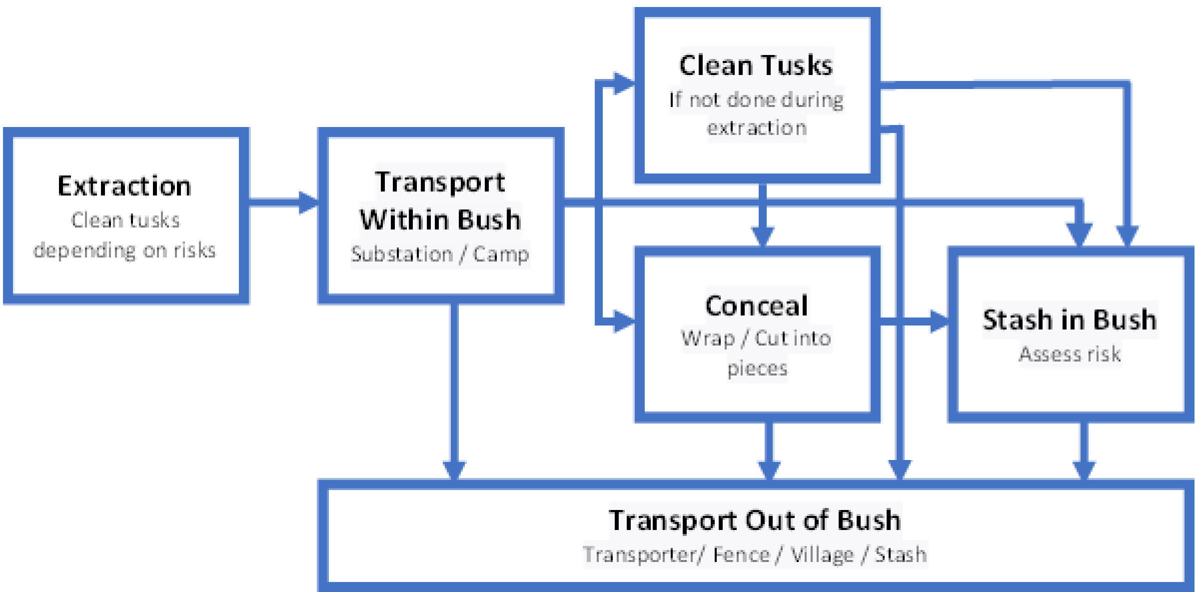

Figure 20: *Chain of transactions for SIMs – Theft and concealment of ivory in the bush*

In closing, it is vital to note that guns and ivory may be buried together (Appendix 3). However, this warrants additional confirmation as detailed descriptions of the storage process may allow enforcement to locate and confiscate both guns and ivory, disrupting current and future theft(s) (Ch.12).

9.2.4 A Brief Diversion to an Alternative Outcome

An alternative outcome is an unsuccessful attempt resulting in arrest or multiple arrests for prolific poachers known to enforcement (n=18 RPs):

> *"The sorrowful part of this is that…*[the buyers] *ask them to return, claiming that they will give them more money…. A large percentage of poachers will re-offend."* RP

> *"There are two circumstances… first of all, you can arrest a poacher and take them to the law, they get sentenced, and after…finishing their sentence, they go back to poaching...secondly, you could arrest a poacher and take them to law, and they get sentenced…. However, after just one year in prison, they are freed to the outside because there are things of bribery…."* RP

Such outcomes from the legal system result in diminished enforcement efforts (Ch.7). However, akin to SGMs reoffending in SIMs suggest that prolific poachers do not return to the same location after arrest. Instead, the shoplifter may rationally decide to incur the extra costs and effort to steal in a different area(s) (Rengert & Wasilchick, 2000; Sutton, Schneider & Hetherington, 2001; Wiles & Costello, 2000)., as voiced by an RP:

> *"If you caught them here today, they wouldn't come back to this area again…a person shoots in Lunda. He cannot return to Lunda. He will go to Jongomero…. They know the bush."* RP

The poacher may travel to a different region and rely on a local host for guidance (Ch.8). Consequently, the habits of prolific poachers must be understood, especially concerning changes in operations after arrest and the potential influence of information exchange in prison, with important implications for CPT (Ch.3).

9.2.5 Liminality After Conceal, Transport, Stash and Transport

Figure 21 shows the *conceal* block of the *permutator* for Tanzanian SIMs, highlighting the process of concealing, stashing, and transporting the ivory up to the point of successfully taking the load to the outskirts of the bush.

Figure 21: *Chain of transactions for SIMs – Conceal inside the bush*

The top-blank face of this block pertains to the teams' activities outside the PAs, discussed in the subsequent chapter. As noted with USGs, the ivory can be carried confidently on a person without concealment, which would pertain to *no concealment* located on the unseen bottom face of the block.

At the outskirts, the ivory may be handed over directly to the transporter, *fundi-fence*, or rural fence (Ch.8). Alternatively, the ivory may be transported to a storage location outside the PAs. The former pertains to an established and organised chain of transactions, where the team would notify the collector of their exit. These outcomes are discussed in the subsequent chapter.

9.3 Concluding the Chain of Transactions in the Bush

This chapter highlights ivory theft, concealment, and transport in the bush. Although some of this information is supported by existing literature, this study informs on the lesser-known *MO* that can shape future policy and prevention strategies (Ch.12). For instance, this study indicates ivory may be processed and stored in the PAs challenging the traditional assumption that whole tusks are quickly transported to minimise risk and detection. Moreover, this study accounts for developments in the region, such as: access to mobile phone networks; the use of motorbikes; and possibly access to chemical acid. Such ongoing changes necessitate a longer-term MRA to ensure the strategies are tailored to operational minutiae as informed by those involved. Especially at this stage, mitigative strategies may be most beneficial for crime prevention before harm to elephants.

Chapter 10: Chain of Transactions Part 2 – Rural-to-Urban

Chapter 10 explores how the successfully poached ivory is transferred to the distributors for export out of Tanzania. At this juncture, the chain of transactions divides into two possibilities. For instance, suppose the shoplifter hides the USGs within a mall before transporting them out of the mall to stash them in their chosen location. Alternatively, the stolen item may be given to the buyer in the car park on the outskirts of the mall. Similarly, the ivory can be collected on the outskirts of the PAs for transport to the urban fence for export. Or the ivory is transported to a storage location outside the PAs for later collection. Both outcomes are discussed in *Theme one*, while *theme two* addresses the disguise of ivory during these possibilities.

Theme three addresses the sale, including the price of ivory, in turn exploring the underlying determinism of committing a crime (the ease and rewards of selling stolen goods) (Ch.4).

Theme four presents a critical analysis of the export or disposal of stolen ivory from Tanzania, including the detailed organisation, specific knowledge and financial ability necessitated to operate in international SIMs.

This chapter then concludes by presenting an overview of the chain of transactions from theft to disposal.

10.1 Theme 1: Concealment – Bush-to-Stash vs Bush-to-Buyer

53 mentions in the data confirm the transportation of ivory to storage after theft, while 21 mentions evidence of transportation of ivory to a buyer on the outskirts of PAs. Both are depicted in Figure 21 and discussed thereafter. However, it must be noted that the enforcement's responses concerning SIMs outside of PAs are heavily drawn from sting operations. That sample's data may be skewed towards novice thieves (or those with stockpiled ivory due to recent crackdown on corruption and illicit activities) looking for a quick sale rather than established chains of transactions.

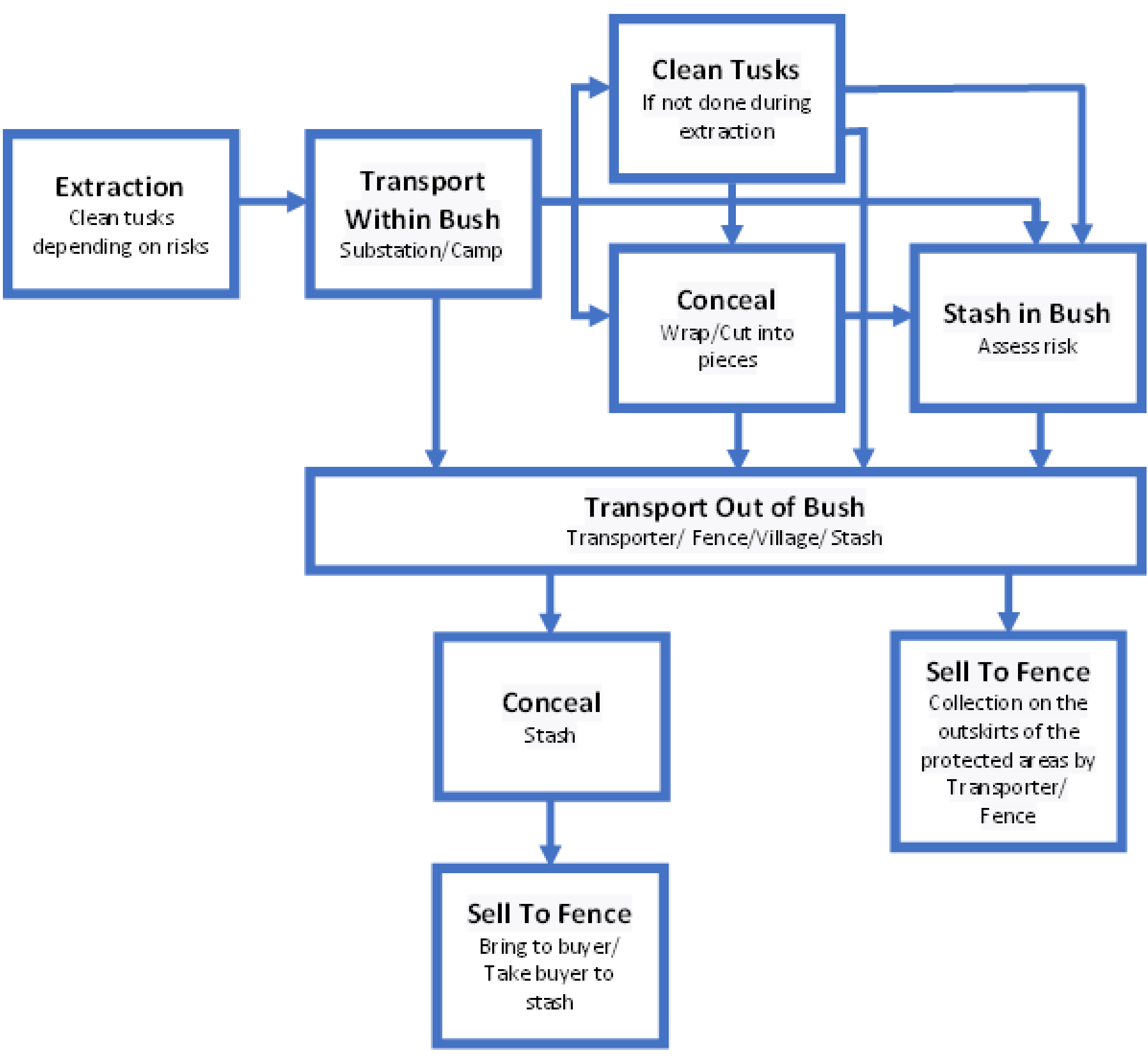

Figure 22: *Chain of transactions for SIMs – Theft to concealment and sale*

10.1.1 Bush-to-Stash

On the outskirts of the PAs, the team may choose to *"hide until it gets dark, till almost around 10pm or 11pm…that is when they cross over* [into the villages]*"* (RP). The storage outside of the PAs pertains to the *Conceal* block of the permutator, as depicted in Figure 23.

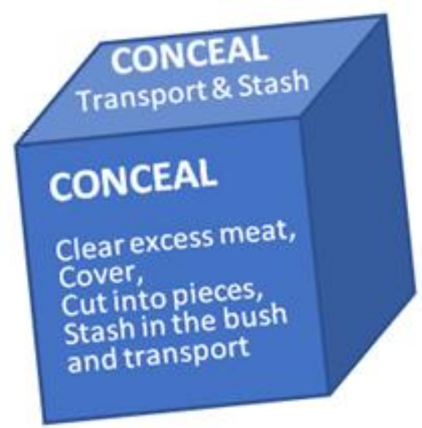

Figure 23: *Chain of transactions for SIMs – Conceal*

The data on how stolen ivory is stored is presented on the following Table 35. For comparative purposes, it can be noted that USGs are often stashed in homes, garages, bushes, gardens, and public spaces (Stevenson & Forsythe, 1998; Sutton, 1998). A similar storage pattern is found by this study, with a higher preference for burying near operators' homes, farmland, under manure or firewood, or in the operators' homes.

Table 35: Storage of ivory in villages and surrounding areas

Ivory storage in villages	No. of mentions	Supporting quote
Celling or roof	4 RP	*"Others hide inside the house in the ceiling boards."* RP
		"There are others who live in grass houses, huts. They can shove it in the grass roofs and tie it up there…." RP
In tree	1 RP	*"They could hide it in large trees."* RP
Maize sacks	1 RP 1 OSP	*"…a person who cultivates maize…hides the ivory in the sacks of maize…."* RP
Under firewood	1 APP	*"…he puts it inside the sulphate bags and puts that in the hole…. He had dug it under the wood for the kuni burner."* APP
Under manure	1 RP	*"…those who own cattle, they go where they collect the manure…. They dig and put it there…."* RP
Bury general	10 RP 4 PPP 2 PP	*"I used to bring it home…you hide it far from home. Not at home! [PPP: You put it in front in the fields-]…not by just hiding it in the grass. You bury it underneath."* PPPs
Bury near home	2 RP	*"Ahah, it wasn't on a farm. It was buried behind his house…in the ground underneath his compound…."* RP
Bury on farmland	2 PP 2 RP 1 PPP	*"…they dig them down under some crops…."* PP
Bury on hills or mountains	1 PP	*"A large percentage of them don't keep it at home. They will hide it in the hills and mountains…in a bag and…dig it down."* PP
Bury in a bag	3 PP 3 RP 1 APP	*"That is, the best way they hid it is to dig it down. They tie it up in more than three bags…and dig it down."* PP
Bury uncovered	3 PPP	*"Ahah! They bury it as it is. As it is. Not to tie it in anything."* PPP

Enforcement participants reported that the ivory is buried in the concealment packaging. However, three prolific PPPs contradict this to suggest that the tusks are buried uncovered to preserve them and to increase their weight through moisture absorption – the latter is trickery embedded in historical practices (Ch.2):

> *"…if you hide it in the grass, bad luck the* [bush] *fire passes over it, they will expand, and when it rains, they start to close-up-close-up, they turn to flour. But if they are immersed in mud or water. They can keep for a long time, even three months, you take it out, it will be just like that!"* PPP

> *"If the rain pours, then it supports you to ensure that the tusk is heavier…[PPP: …more rain, the heavier it is]."* PPPs

Although buyers of the past may have waited for dry tusks, contemporary buyers do not have that luxury due to hasty exchanges. The enforcement responses may be in reference to old ivory covered to prevent decay by opportunists or novice traders or those *shopping* for the best price, as found in SGMs (Ch.4).

The data suggest the ivory could be stored for a few months or up to an entire year, depending on the individuals' capabilities and illicit network:

> *"Here, he can't even stay for a year. Maybe he stays with it for two months, three, while he is looking for a customer."* PPP

> *"You can find that they sit on those tusks for even up to a year just looking for a buyer…because…they don't understand where…and how to sell them."* PP

Both long and short-term storage are plausible, dependent on the operators' expertise in SIMs, while the location for stashing depends on the individual's environment and resources available for concealment. This further suggests the importance of location and wildlife or wildlife part specific research to understand the minutia of the poachers' *MO.*

Moreover, it is equally possible that the illicit ivory is *"stored underground far away, together with their weapons"* (RP), as presented in Appendix 3. Of note is the storage of ivory under crops, similar to USG's found hidden under planted cabbage to mark the burial location (Sutton, 1998, p.108). However, such markings do not assist enforcement searches. Nonetheless, with technological developments such as ground penetrating radar, this study's findings may be used for market disruption (Ch.12). Especially if guns and ivory are stored together as guns and ammunition may be easier to detect.

10.1.2 Stash-to-Buyer

> *"Outside the park, it really doesn't stay for a long period of time…I mean, think about this practically… the longer that you have something, the easier it is for someone to tie you to it and then get you into shit for it."* OSP

As explained in the opening quote, it is not always the case that individuals will struggle to find a buyer, as transporters and rural fence are frequently sourcing ivory, either that has been ordered or when the *fundi* "steals-to-offer". However, novices and opportunists possessing ivory may be lured into sting operations. Consequently, the buyer may be taken to the stashed location, or the goods may be brought to the buyer.

Although, before proceeding, it must be understood that the chain operates differently for those collecting ivory on order and those negotiating in steal-to-offer situations. In the former, there is a general preference for the fence to instruct their intermediaries to collect

the ivory rather than have the poacher deliver the goods, as similarly found in SGMs (Sutton, 1998):

> *"We used to sell to people that came from the area of Kenya...one Jaluo guy used to collect…so we were doing that business…those customers they used to come here to ours a lot."* PPP

The collection ensures that the transporter and rural fence can procure "*a sufficient amount of load"* (PPP) from different *fundis*. At the same time, this process ensures that urban fences – often elite and reputed – can remain anonymous to the poachers whose chances of arrest are higher. A process that the *fundi*s are aware of:

> *"Here is where my friends don't want to be known who the buyer is."* PPP

This manner of the collection also allows novices or opportunists to sell to visiting buyers through a trusted *fundi* or local host who charge a commission (Ch.11). Alternatively, steal-to-offer may take place in unorganised chains, with a firm reliance on communication and trust, best explained by an RPs sting operation:

> *"…you request…to meet and buy it…then you make the seller understand that…you are good people with money…the informer tells you…how to secure the deal, so it becomes easier."* PP

Initial communication occurs over mobile phones, but the negotiations and the business are conducted face-to-face. Typically, *"they could meet for alcohol, or a hotel, they could meet at a bar"* (RP).

At this juncture, the chain divides into two yet again: either the buyer is taken to the stash, or the stash is brought to the buyer, as discussed next.

10.1.2.1 Stash-to-Buyer vs. Buyer-to-Stash

As found in SGMs, the buyer can be taken to where stolen goods are hidden (Sutton, Schneider & Hetherington, 2001). This study found the same for SIMs (n=4), although there is a greater preference for poachers to transport the stored ivory to a pre-arranged location, as evidenced (n=7).

Novice traders operating on steal-to-offer may take the buyer to the storage location. This depends on the trust built during face-to-face networking, the seller's rush to trade the tusks, and possibly due to a lack of access to transport. Concerning ivory-on-order or experienced operators of steal-to-offer, *"trading in the village area is not common. They will take it outside the village"* (RP), where there are few to no witnesses. Less frequented roads are preferred as they allow the seller to hide and assess the situation:

> *"Ahah, it's like this… When you come to the village, you don't come in. You park* [far]*…I'll take my motorbike to you…it's a plain area, there are just trees and what there."* PPP

Alternatively, the ivory may be brought to the buyer at their rural residence. Buyers may decide to stay in rural areas for several weeks or months in temporary residences to ensure a constant supply of stolen ivory. This, in turn, presents an overlap between SGMs and SIMs through the operation of a residential fence (Ch.11) with implications for market disruption (Ch.12).

These indoor locations include houses, guesthouses, farmhouses, hotels, and safari lodges, which may be easier to address through crime prevention campaigns than exchanges in vast rural areas (Ch.12).

Once the location is agreed upon, the seller plans how to transport the stored tusks to the exchange location, with implications for the MRA (Ch.12). This study found that in most cases, more than one team member (a minimum of two members) conducts the sale, depending on how many people are needed to dig the stored ivory, the amount of ivory to be carried and the delivery logistics:

> *"They brought it in a sack...with transport depending on their capabilities, depending on how big the load is…sometimes, they can come with no load, or half the load first, to look at the payment environment…other times when they are very crafty…they just hide, and he watches you* [to] *check if it is real…then he returns to get the load."* PP

Although when the poacher (possibly novice or opportunist) may not have the funds to hire a supporting team or access motorbikes, they may resort to a bicycle, failing that, they may carry the ivory or instruct the buyer to meet at the storage site.

It is evident from the data that the role of motorbikes (personal, rented, or taxi) continues to be integral in operationalising the sale, while the ivory may remain concealed homogeneously to the chosen concealment in the bush (Ch.9).

Over time, buyer-thief relations develop across multiple purchases, and the level of caution and distrust may decrease, resulting in ivory-on-order, where it may be collected directly on the outskirts of the PA without needing storage:

> *"I told you, the business…as in it doesn't reach home... As in, it's from up-and-up. I take it out from there* [the bush]…*I take it around, and I am done with the sale."* PPP

10.1.3 Bush-to-Buyer

The direct handover to the buyer during ordered theft overlaps the findings of SGMs, where thieves aim to sell to known fences within 24 hours after theft (Sutton, 1998; Sutton, Schneider & Hetherington, 2001). In SIMs, this occurs on a careful, "need-to-know only" basis when members are distrustful of one another (especially when there are multiple *fundis* on a single expedition):

> *"…they don't trust one another, whereby once they have finished the job…all they want to do is finalise the sale so that they can go separate ways."* RP

The team communicate with the transporter, a rural fence, or a *fundi-fence* (Ch.8) to collect at the point of exit. The rural fence or *fundi-fence* will sell forward to another fence capable of international export. The transporter will be paid for delivering the tusks and may be entrusted to transport the tusks forward to the next fence or the point of export in more organised chains:

> *"I mean…guys that I work with…their old job was…to transport ivory, so they pick it up to take it to a point…where someone else was going to pick it up, pass it on and continue."* OSP

It is important to note that the supporting staff in this instance may be instructed to remain in the bush and observe ranger and elephant movement while the lead *fundi* delivers the tusks and is advised on a new order:

> *"They admitted that they were waiting there for their colleagues who left with the guns and the load…to deliver the tusks to the boss…so that they could carry on poaching another elephant as ordered… They stayed to be on the lookout for elephants and rangers…so that when their colleagues returned, they could give them a briefing of these ongoings."* RP

During this exchange, the buyer (or their intermediaries) may replenish the teams' supplies for the new order.

Of note at this stage is the possible influence of road construction sites and the sale directly to buyers in Asian companies that construct labourer camps along the route (Bräutigam & Tang, 2012; Flores, 2017; Walelign, Nielsen & Jacobsen, 2019). Some individuals may buy directly from the poachers living in proximity to the camps (corroborated by five RPs):

> *"I have previously done business with the Chinese. He was constructing the tarmac roads coming towards Bunda…."* PPP

Although two participants opposed such an outcome, claiming that "*that's maybe stereotyping the Chinese"* (OSP), a PP also expressed the same. Despite some participants disputing this outcome, this study and existing literature confirm a link between road construction camps and Tanzanian SIMs (Alden & Harvey, 2021, p.21).

This information has multiple policy implications pertaining to transparency between the government and foreign (Ch.12). Here, the chain of transactions progresses to *Disguise* as the tusks are transported from rural to urban areas or neighbouring countries.

10.2 Theme 2: Disguise and Transport

The second transport phase is eminent as the ivory is taken to fences for international export. It is vital to note the difference between concealment (covering the ivory and disguise (presenting the ivory as another legal product to allow undetected transportation). The researcher's log highlights the indispensable role of transport through the chain of transactions, specifically concerning the disguise of illegal ivory:

> *"Even those that deny elephant poaching when it comes to this question, they always ask for clarification like on which stage of transport I am referring to, from bush to village, village to the buyer or to the city. The transport is almost like the main vector that suggests the stages of sale…."*

Transportation after theft cannot proceed without disguise to limit the risks of confiscation and detection, including disguise as legitimate commodities or within modified vehicles, as depicted in Figure 24 (see also Figure 7).

Figure 24: *Chain of transactions for SIMs – Disguise*

Of note before proceeding on *disguise* is that stolen ivory can remain in flux during the trade between fences in neighbouring countries and Tanzania. Whereas disposal via export to end markets is one-sided, and the ivory is permanently disposed of out of Tanzania (Section 10.4). Moreover, the data begins to thin as the questions approach the end of the chain of transactions, further reinforcing the organised and cautious nature of the fences operating in SIMs.

Disguise depends on available logistics and ivory aesthetics (colour, texture, or weight), as shown in Table 36. The number of mentions in the data possibly illuminates the more common disguises.

Table 36: *Disguising stolen ivory for transport*

Disguise	**No. of mentions**	**Supporting quote**
Personal luggage	8 RP 2 PP 1 PPP 1 OSP	*"The sister with the tusks…she had cut-cut into pieces and had placed them in her purse. A lady…. It was so unexpected, such an elegant lady!"* RP
On a person	3 PP	*"They were carrying the two tusks in their pockets…it was cut into four pieces…belonging to one animal killed, two tusks."* PP
Disguised as general commodity: n= 25		
Fish gas bladders/ seafood	2 PPP 1 OSP	*"…they were bringing them here to Mwanza...in mabondo* [fish maws or gas bladders]*…when they reach the border…it looks...like something normal. It passes."* PPPs
Charcoal	2 PP	*"…they are stocked in charcoal."* PP
Boxes	2 PPP	*"[PPP: They use boxes]. They use big boxes. [PPP:* [enforcement] *don't want to search large loads]."* PPPs
Maize	1 PP 1 OSP	*"So, they can hide them in the corn load…."* PPP
Rice	1 PPP	*"…these cars that used to carry rice leaving from Iringa going to Dar-es-Salaam. That space at the bottom of the rice sacks, he puts it."* PPP
Agricultural products (sweet potatoes, cassava, wheat)	2 RP 1PPP	*"They pack it in such a way it looks like agricultural products…it is tough for one to find out what it is in there, most of the time, we catch them on the way from the villages."* RP

Ivory disguised as personal luggage or on a person (n=13) may be favoured for lower volumes of ivory in possibly less organised chains. Alternatively, in more organised chains, relying on ivory's characteristics makes it easier to blend with commodities frequently traded in large volumes, making them difficult to police. The latter is further hindered as land-locked countries rely on Tanzania's ports, increasing cargo volume. This further confirms the involvement of established businesspeople and legitimate businesses, as found for SGMs in South Africa (Huigen, 2021, p.7) and the UK (Sutton, 1998):

> *"…don't assume that the Chinese have come here, here to the town, to buy the gas bladder. That is just a way for them, but they do many bigger jobs…."* PPPs

Of note in Table 36 is that commodity disguises correspond to the slang used for ivory (Ch. 6), which gives insights into how some businesspeople may conduct verbal communication without specifying illegal ivory negotiations.

The importance of understanding the minutia of disguise can be explained by fish maws, which were of limited use in Tanzania until increased demand from China (Daily News Digital, 2021; VOA Swahili, 2021). This suggests that urban fences rely on the demand within their legitimate business to determine the mode of disguise. Resulting implications for crime prevention include tailored surveillance and financial transparency of fish maw companies, stop-and-search of fish maw cargo and monitoring demand of legitimate cargo to predict disguise (Ch.12). With a reliance on legitimate commodities, disguise often determines the mode of transportation (Table 37). Alternatively, ivory may be disguised in modified cars (n=18) (Table 38).

Table 37: *Disguising stolen ivory for transport within Tanzania*

Disguise and transport	**No. of mentions**	**Supporting quote**
Sulphate bags (Motorbikes, bicycles, donkeys, on foot)	4 PPP 2 RP 1 OSP	*"*[They] *come with cars like the one you came in* [VX Toyota]*…they don't load it in there. No…. They pass it, their guys on motorbikes on rat roads…only they know…the place to load these tusks*." PPP
Luggage and public transport	2 PPP 2 RP 2 PP 1 OSP	*"…he had the tusks in the briefcase…cut into pieces…and he put it on the public bus…."* RP
Luggage and private cars	3 RP 1 PP	*"So, they used to transport them in cars. They put them in the boot…."* PP
Commodities on lorries	1 PPP 1 RP 1 PP	*"…in the villages, they use these lorries that are used to transport agricultural products to transport the ivory to its final destination…."* RP
Government vehicles	1 OSP 1 PP	*"So, they also use the government vehicles…many people who are close to the government are working through the government also doing this business."* OSP
Petrol tankers	1 PPP	*"…they can arrange with those petrol tanks…that have offloaded the fuel, that door is big…. No noise, see they put them in those cloth sacks."* PPP

Where sulphate bags and jute sacks are used, they are often transported on foot or by bicycle using rat roads [*barabara za panya*] or smuggling routes (Titeca, 2019) and overlap concealment. One RP elaborates that they found ivory on public transport, stored *"in a briefcase…and covered with a bedsheet…from a guest house,"* akin to the findings by Sutton (1998), presenting a further overlap with concealment.

Table 37 also indicates the use of boxes. One PPP stated that the boxes are requested to be placed in civilian cars without the driver or passengers knowing that they are transporting illicit ivory:

> *"Ehhe, they can't know…if I say maybe could you help me with life...I have heard that you are going to Mwanza, I have my box here…load it up there* [on the car roof]*…. A person cannot have a problem. It just goes. No smell."* PPP

Organised chains of transactions may rely on government vehicles or lorries that transport legitimate staple commodities within Tanzania. As previously indicated, this mode of transport is conducted by fences that are elite, established businesspeople with a diverse network. This also suggests that intermediaries may be instructed to procure a more significant load that can be disguised and loaded on private lorries or government vehicles.

Table 37 demonstrates that the most popular disguise is modified vehicles that disorganised and organised operators use. Respondents elaborate on this by detailing the preferred vehicles and modifications. Concerning the former, some participants revealed that *normal* cars are used to blend into the environment or *"expensive cars to show that they really have money"* (APP). Four participants (RPs and PPPs) referenced the researcher's car (*Toyota Landcruiser, 4x4 VX*), while others suggested *Kruger Ford*, *Noah HiAce,* and *Canter FUSO*. Of note is the preference for the Noah for sting operations and by fences due to its commonality and because *"the door of a Noah, it just slides open, not like normal cars"* (RP), assisting in high-risk sales.

The data indicates space for inter-agency collaboration with car registration and rental companies. Understanding who facilitates the transport may reveal potential established fences for surveillance. Similarly, inter-agency efforts concerning vehicle modification (presented in Table 38) may also present some crime prevention options.

Table 38: *Disguising stolen ivory for transport through modified vehicles*

Modification	**No. of mentions**	**Supporting quote**
Under-seat storage	4 RP 1 OSP	*"Most times, we found…them under the seat…."* RP
In spare tyres	1 OSP	*"…they put it in a spare tyre…and they put in a boot…. Some vehicles have the hidden boot."* OSP
Modified chassis type 1- cars	5 RP 2 PPP	*"That car is made with a box under the chassis… It's like a fuel tank…the lid for that tank is on top. It could be in the boot or there in the middle of the car…and the seats are put back on top…. So even if a person bends over to observe it, they would just assume that it is a fuel tank."* RP
Modified chassis type 2- trucks	4 RP	*"…they had welded down there in the boot of the Canter and built in a box…below the chassis.…so the door* [to the box] *is here near the number plate."* RP
Behind speakers	1 OSP	*"So, people can remove those speakers, put the ivory there, and bring back the speaker. It's not easy to see. yeah."* OSP

Vehicle modification in the IWT is common (Siriwat & Nijman, 2018). However, only experienced officers in this study were aware of modifications. Therefore, this study could be used to: create guides and typologies for new enforcement recruits; guide border and traffic control stop-and-search; encourage the policing of, and network with informants in vehicle modification garages as a form of prevention (Ch.12). Disguise through modified vehicles may also be used for export to neighbouring countries as discussed next.

10.2.1 Disguise and Transport for Export

The data in Table 39 (mainly from enforcement) explains how the ivory might be processed and disguised for disposal in international markets. PPPs' and APPs' responses are limited, possibly because they only deal with the initial buyer, and intermediaries share little to no information.

Table 39: Disguising stolen ivory for transport out of Tanzania

Disguise for export	No. of mentions	Supporting quote
Loaded with commodities	2 RPs 1 OSP	*"Like seafood…maize, or timber…they put them together in the container. You must have seen pictures in the media."* RP
Powdered	4 RPs 1 PP 1 PPP	*"…they used that machine to grind the tusks into powder…so that it came out looking like…maize flour, to that consistency."* RP
In pieces	2 RPs 1 PP	*"They would cut them into small pieces and then export them to China."* RP
Personal luggage	2 RPs	*"…he had made two partitions. His clothes were on top, but beneath…he had crafted…a place to store those ivory…."* RP
Government transportation	1 PP	*"…other Chinese fellows…they put the tusks on government cars, they get on planes…they have VIP protection from the embassy."* PP

The high number of mentions of the processing of ivory into powder is due to a high-profile arrest where machinery was confiscated, including bandsaws. However, it remains unclear how end-consumers would use powdered ivory, especially as the literature suggests limited use in TAM (Wei, 2015). Overall, the disguise of ivory is primarily within commodities, as evidenced by the number of responses in Table 39 (see also Section 10.2). Alternatively, lesser amounts of ivory may be transported by international travellers, or larger amounts may be disguised as government property where possible.

Concerning regional export, ivory can also be transported on foot, motorbikes or using donkeys on rat roads:

> *"No. I walked from here…[PPP: From here to Kenya, it's not very far]–it's not far. [PPP: By walking, it's three days only]…. Just three days. [L: Eh! Do you pass inside the bush?]. Eh! They walk in the bush."* PPP

Rat roads are heavily dependent on Tanzania's porous borders for low-risk delivery:

> *"…it does not pass customs. It passes…do you know mpaka-bubu? [L: Yes, the silent borders…?]. Yeah, those alleyways. There are places to pass by law and others to pass without detection. Cars can pass. It's all passable."* PP

Titeca (2019) records the same use of rat roads for ivory smuggling in Uganda, suggesting regional overlaps in SIMs with implications for the MRA. Also of note is that PPPs were comparatively more knowledgeable on regional export than inter-continental export.

In concluding *theme two,* the chain thus far is summarised by the following datum and Figure 25:

> *"If the fundi shoot it here in the bush, he takes it till the village. That boss…will send his staff who will come till the village. They give them money…The fundi gives him the tusks. They weigh it. He starts his journey of carrying the tusks to take it to the boss."* RP

The boss then facilitates exports, relying on their enterprising behaviours as discussed after acknowledging the market dynamics and price in the following section.

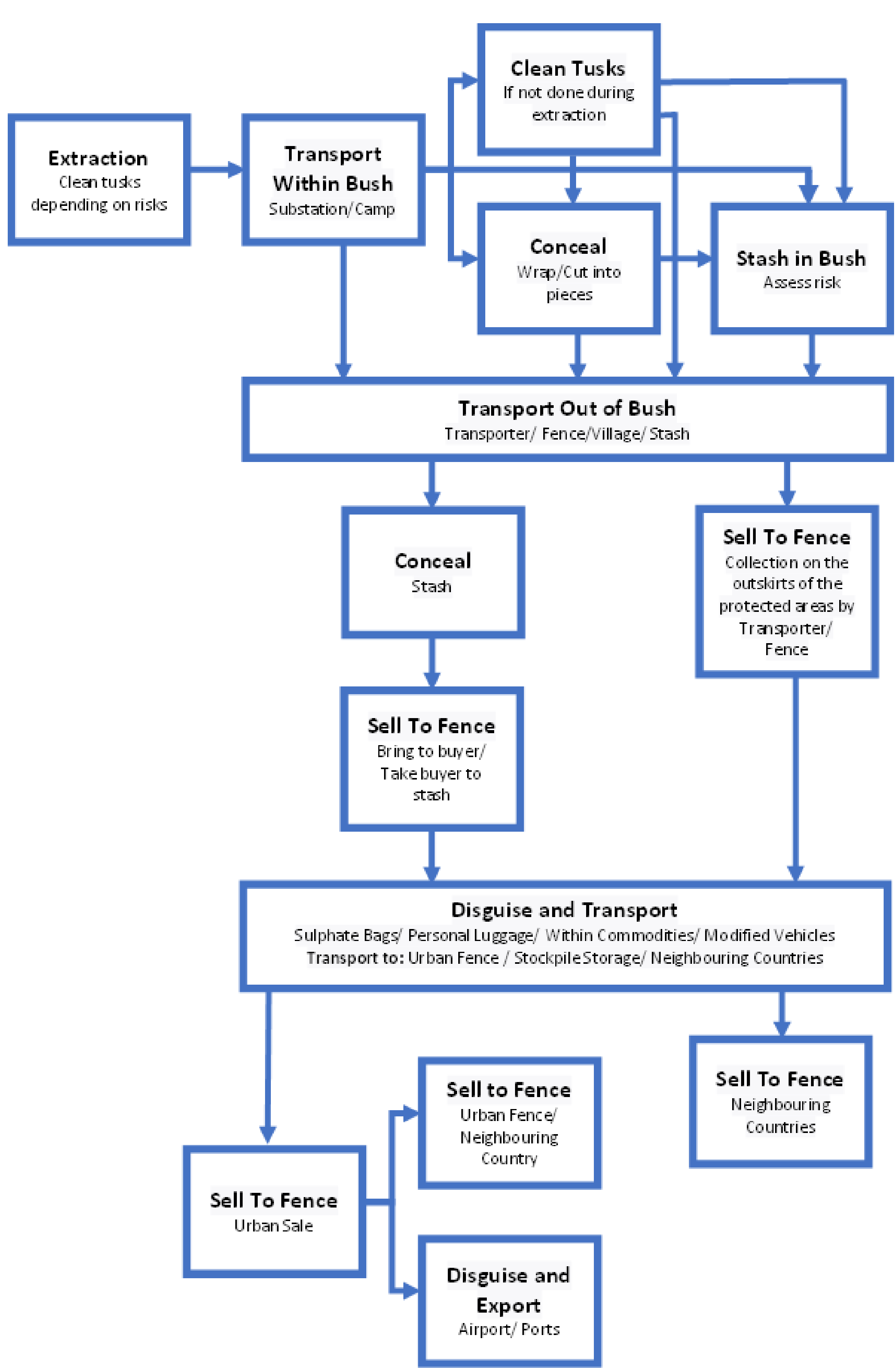

Figure 25: *Chain of transactions for SIMs – Theft to concealment, disguise, sale, and disposal*

10.3 Theme 3: Market

Firstly, the market in this theme pertains to the sale and price of ivory from poacher to rural fence, intermediary, or *fundi-fence* (collectively referred to as the rural buyer). Secondly, the theme addresses the price of sale from the rural buyers to the urban fence and how the ivory may be stashed before export. Both are depicted on the front face of the following figure:

Figure 26: *Chain of transactions for SIMs – Market*

Weight plays an integral role in determining the price of ivory and must be considered before proceeding with this theme. Although participants voiced a range from 6 (n=1) to 90 (n=2) kilograms, it must be noted that *"the bush has changed"* (PPP), and *"even if you get big tusks, it's 50 kilos, but these days you're not even gonna get that big"* (OSP). Coupled with the fences' preference for ivory over ten kilograms (Ch.9), tusks weighing 20 to 30 kilograms are more commonly poached (n=8).

10.3.1 Market Dynamics and Price from Poacher to Rural Buyer

Regardless of the sale location, the exchange occurs in the same manner, with each party equipped with their own weighing scale to prevent tampering (n=48 across all samples). When the scales show discrepancies, then new negotiations have to take place outweighing the previously agreed price:

> *"We have 100 kilos, so 100 kilos by 35* [35,000 TSh] *is three million and a half…. If you go, then he brings his kilos* [weighing scale] *as well…. Other times, your kilos may not be good…you find that it is 100 and 5. So now…he will have to increase for the extra five kilos…. It's a must he increases! A must– [PPP: and if it is less, then he decreases]…if you thought it was 100 kilos and it is then 99, it's a must that he pays for 99 kilos."* PPPs

In conjunction with this understanding, the price of ivory is complicated by market dynamics (Ch.4), for instance, by advance payments for supplies (Ch.8 & Appendix 3). Moreover, if a fence hires the fundi, then payment is still dependent on weight but at a set rate, as explained by a PPP and an RP:

"Ehhe, meaning you guys were employed. Different to the one who has his own gun and he does it himself…. So, for a person who does it himself, it means he sells 100 kilos for ten million [100,000 TSh or 43 USD per kilogram]*. Ehhe, because everything is his, he will know how much he pays his porters…he can go himself…. But you, when you are sent, everything is the boss's, that's where you are paid two million* [20,000 TSh or 9 USD per kilogram]*."* PPP

"[Name omitted] *provides everything for these people, he gives them the flour, he gives them the guns, he gives them the bullets, and so when the fundi, goes to shoot, paap…one kilo is, between around…15,000-25,000 TSh* [7-11 USD]*…it means, if the tusks are 15 kilograms, they will be paid that amount 15 times* [225,000-300,000 TSh or 98-130 USD]*."* RP

Alternatively, when a *fundi* relies on a marketer to connect them to a buyer, the marketer pockets five times the amount – 50,000 TSh (22 USD) per kilogram for the *fundi* and 250,000 TSh (108 USD) per kilogram for the marketer, with the buyer paying 300,000 TSh per kilogram. Further complications arise concerning a marketer, as they too may be paid an advance sum that is deducted from their commission:

"…when they weigh the kilos…I will say it's 300,000 TSh a kilo. So, when you are paid by the bosses, for example, 14 million and 600,000 TSh...I look for 250,000 commission for myself, for knowing me and making the connection…if you have the load in someplace, then they give you an advance, but it will be covered from the end deal. They left an advance of some money [previously mentioned 500,000-250,000 TSh *"just for circling around and travel"*]*, but then that amount is cut off from the total…because mostly, we use motorbikes for travel."* APP

This study also suggests that the previously understood influence of the tusk's characteristics on the price of ivory may be irrelevant in contemporary Tanzania SIMs (Ch.2 & 4):

"Per kilo!... The kilo is just that. And it's 30,000 TSh, as in even if it is short or long or anything." PPP

As a result of these complications, Table 40 shows the data on the price of ivory categorised by the year (where possible; ND – No Date) and the operators who are paid (*fundi* or the rural fence). The USD equivalent (rounded up) is also presented as SIMs can operate with Tanzanian Shillings or American Dollars. 15 participants (two APPs, one PPP, two OSPs, one PP and five RPs) did not know the price of ivory. There is a level of secrecy involved, with only those directly operating in SIMs being able to confirm the price of ivory. As the researcher's log suggests:

"It's as if admitting to knowing the price is admitting their involvement in illegal ivory markets!"

Table 40: *The price of ivory per kilogram – shooter to rural buyer*

Year	Paid to	TS)	USD	No. of mentions	Supporting quote
ND	*Fundi*	15-25, 000	7-11	1 PPP 1 RP	*"One kilo is between…15,000 TSh* [7 USD] *to 25,000 TSh* [11 USD] *for the fundi…"* RP
2014	*Fundi*	35,000	15	2 PPP	*"…we reached a point of selling at 35,000"* PPP
ND	*Fundi*	30-35,000	13-15	2 PPP 1 RP	*"…the fundi sells it…for 30,000-50,000 shillings because they also provide them with bullets."* RP
2018	*Fundi*	50,000	22	1 RP 1 PP	*"…just last month...he wanted 50,000* [TSh] *per kilogram."* RP
ND	*Fundi*			1 APP 1 RP	*"50,000 per kilo for the hunter…to the buyer, I said 300,000 per kilo"* APP
ND	*Fundi*	70-80,000	30-35	3 RP	*"…*[the shooter] *would get paid like…80,000 TSh per kilo. RP."* RP
					"…when I had gone…undercover…they were selling for 70,000 per kilo." RP
2011	*Fundi*	100,000	43	1 PPP	*"I remember in 2011 it was...100,000 for one kilo…one elephant has maybe kilos, 23…so 23 and 23…it comes to 46."* PPP
ND	*Fundi*			4 RP 3 OSP 2 PPP	*"…in the villages, they were buying one lakh for one kilo."* PPP
2014	*Fundi*	100-150,000	43-65	1 OSP	*"…back in 2014, when there was a high demand…50 or 40 USD per kilo."* OSP
2017	*Fundi*	150,000	65	1 RP 1 PPP	*"…during the honour of John Pombe Magufuli to enter…it had risen a lot…I heard that at a quick price, one kilo is one and a half lakhs."* PPP
2019	*Fundi*		65	3 RP 1 PP	*"…you can get by one kilo at, at 1.5 lakhs, which is 60 dollars"* RP

ND	*Fundi*	162,330	70	1 PP	*"…not less than 70 dollars…. [L: price by the kilo or?]. By kilo."* PP
2019	*Fundi*	180,000	78	1 PP	*"They say that it is one lakh and 80, as of now, per kilo."* PP
2017	*Fundi*	200,000	86	2 RP	*"I caught them last year…we agreed on 200,000 per kilogram."* RP
ND	*Fundi*			4 APP 4 RP 1 PP	*"Maybe in the villages, I could tell you that it is per kilo, they will sell to you for two lakhs…. That is the minimum."* APP
					"…they wanted six million…for a package of…30kg." RP
ND	*Fundi*	300,000	129	4 APP 3 RP 2 PP 1 PPP	*"…if the boss is well-off, then he can say three lakhs."* APP
					"For someone who has no rush, it's three lakhs per kilo, meaning…they can find someone." PPP
ND	Marketer	300,000	129	1 APP	*"50,000 per kilo for the hunter, but to the buyer, I said 300,000 per kilo, so I make a profit of 250,000 for every kilo."* APP
ND	*Fundi*	400,000	172	1 APP	*"It could be more, the most of 400,000 TSh."* APP
2019	*Fundi*	500,000	216	1 PP	*He said the total was seven million…[L: how many kilos did he have?]. He had, I remember, one tusk was 7.3kg, and the other was 6.7kg."* PP

The Wildlife Crime Report (2020, p.14) states that the price of ivory in Tanzania in 2014 was 95 USD, in 2016, it was 78.5 USD, and in 2018, it was 40 USD. In comparison, this study's findings did not match the report. However, Titeca (2019) found similar prices as this study for dealers in Uganda, with the shooter receiving 20 USD per kilogram or the price falling between 100-120 USD.

Due to the fluctuations in existing research, the data in Table 40 needs to be contextualised. Firstly, the price from 15,000 TSh to 35,000 TSh (7-15 USD) per kilogram pertains to the *fundis* that fences have employed and where supplies have been sponsored. The lower price accommodates advance payments (Ch.8 & Appendix 3):

> *"[L: How much of an advance can he give?]. Eh, they can even remove like five lakhs* [500,000 TSh] *so to buy all these things and the porters, ehhe."*
> PPP

There seems to be a consensus within the data that 500,000 TSh (217 USD) is the going rate for advance payment (for the shooter and marketer). Possibly, then (if calculated honestly), that is the initial cost of stealing ivory from an elephant in Tanzania. However, in some cases, the data informs that long-term employment of shooters may be facilitated by small deductions of advance payments to ensure the *fundi* remains committed (Ch.8).

Secondly, the price ranges from 50,000 TSh (22 USD) to 80,000 TSh (35 USD) per kilogram relates to a *fundi* in a rush to sell or a *fundi* who relies on a freelance marketer to connect them to a buyer.

With no intermediary, the *fundi* may sell directly to a buyer at a low price of 80,000 TSh (35 USD) per kilogram as they need the money or can no longer store the contraband due to perceived risks (Ch.4; Milliken et al., 2018. Further research is required to establish if stockpiling correlates with increased sting operations or quick sales experienced by enforcement in this study.

Fourthly, a *fundi* who is not in a rush, has a direct connection to the buyer without needing an intermediary, and has the liquidity to support the cost of theft (including guns and bullets) may be rewarded with 100,000 TSh (43 USD) to 300,000 TSh (129 USD) per kilogram. In this study, this is the most referenced category for sale from shooter to the buyer.

The final range on the table is from 400,000 TSh and 500,000 TSh (172-216 USD). As one APP explains, that is the maximum price ivory can go for at this stage of SIMs and depends on the buyer's eagerness to purchase at a high price and the *fundi's* ability to stash and shop for a higher price. However, it must be noted that the price of 500,000 TSh was experienced during sting operations. It is, therefore, possible that the *fundi* believed they were selling to a novice buyer assisted by the PP's willingness to close the deal to make arrests, knowing that no money would be exchanged.

In summary, the data on the sale price between a shooter and a rural buyer can be divided into three broad market dynamics: a fence that places orders for ivory, including a form of employment of the shooter; the fence that hires a marketer*;* and a novice buyer. Although, within these fluctuations, a rural residential fence may remain in the rural vicinities procuring enough ivory at a range of prices (Ch.11). Consequently, the price of ivory can inform on the types of poachers and buyers operating in SIMs, even though there is no fixed price without considering all the factors involved, or, as an RP and APP voiced:

> *"The buyer is usually the one with the final say, as he is the one going to sell it forward. He needs to get his profit, not the guys with the guns."* APP

Implicit here to participants' responses is evidence for the importance of the guidance of the MRA to fully understand illicit market dynamics. Further research is required to understand the influences on the price at this stage of SIMs, including: (i) advance payments; (ii) reliance on a marketer; (iii) direct employment by a fence; and (iv) the rush to sell tusks; or when there is no rush to sell, and storage is possible. Therefore, in addition to Stiles, Martin and Vigne (2011), this study contributes to these considerations for researchers discussing prices with participants of SIMs. Details such as those discussed here bring to the forefront the original contribution of the thesis and its contribution to building bridges to span knowledge gaps.

Further closing considerations on the price of poached ivory include:

1. Rural fences may lie to their financiers about the cost of ivory to ensure a margin to steal and pocket the money:

   > *"They can lie that they paid the lower poachers, for example, one million shillings, while in reality, they paid them 500,000."* RP

2. Four PPPs voiced that the price would increase due to the general tightening of laws:

   > *"…if you cannot find the thing* [ivory], *then the price will increase… if there is a lot, then the price will drop. So now here, the government has already become careful, so I assume that the price has gone up."* PPP

3. The possibility of not being paid. One PPP shares their poaching experience in a neighbouring country where they accompanied other shooters. During an arrest, the *fundi-fence* bribed their way out, the load was seized, and the rest of the *fundis* were left to make their own way back to Tanzania:

   > *"I didn't even get five cents of it! [L: Sorry. He didn't pay back in Tanzania?]. No! There was nothing!... He was hoping to entice me so that I would return there with him so that I would be paid for this work and the work I didn't.* [I said] *I am not going there even if you pay me. That's when he refused to pay. I said, okay, leave it. See, every person is still healthy. You haven't cut my hands off. I'll return to farming."* PPP

10.3.2 Payment in Cash vs Mobile Money

> *"Ahah, that long-winded way of cash has been left behind [laughs]."* PPP

Mobile money has changed the landscape of everyday transactions as electronically transferred money can be banked or withdrawn from cash kiosks across Tanzania (Abiona & Koppensteiner, 2020; Chale & Mbamba, ND; Economides & Jeziorski, 2017). The responses for this study were mixed 19 participants evidencing a cash-only policy (seven PPP; four OSP and RP; two APP and PP):

> *"You count it there-and-then!... He has a bag from here to there full of money."* PPP

Seven participants (three PPPs, two RPs, one APP and OSP) suggest that mobile money allows for easier transactions (opening quote), especially when there is trust between buyer and seller:

> *"…it reaches a point where we have a relationship, build trust…he comes to buy from me from time to time. My customer. Therefore…maybe the load is for one million, he removes maybe even five lakhs, and then he says, now I'm going…I will transfer the money to your phone…. Other times, he could go and bring it to you in cash."* PPP

Transfer via mobile money suggests an established relationship between the buyer and the seller, where the money can be transferred later, allowing discretion during exchanges. Alternatively, the rural buyer may withdraw money closer to the exchange location to avoid the risks of travelling with large sums. Consequently, *follow the money* investigations (Kleemans, 2015) may lead to the facilitators of SIMs. Additionally, rural kiosks that experience large sum withdrawals may be monitored to determine the operators' location, with implications for mapping hotspots for sale (Ch.12). Such disruption may be temporary as operators will revert to cash-only exchanges upon increased arrests.

10.3.3 Sales Tricks

Chapter 2 informs on the 'tricks' used in historical markets, while Chapter 8 briefly shares that ivory is buried to increase its weight (n=5). Table 41 shares other trickery found in the data with inferences for market displacement.

The standard trick is burying the tusks to increase their water weight or manufacturing whole tusks using Ankole cow horns, cement, and wax. Nevertheless, whether the urban fences are concerned with manipulated wet weight remains unanswered.

Table 41: *Sales tricks in SIMs*

Sales trick	No. of mentions	Supporting quote:
Hippo ivory and metal	1 PPP	*"Ah, now you also have teeth that have no business like those of the hippo…they cut, take that of the hippo [claps hand mimics stuffing], [L: Hippo into the elephant cavity?]. Ehhe, well, they also take that metal and insert it…."* PPP
Stones	1 PP	*"…to gain maximum profit...they put stones…in the cavity to make it heavy."* PPP
Cow horns	1 APP 1 PP 1 RP	*"I remember in 2016…they had made a fake one. There are those cows of the bush from Rwanda and Uganda that have very big horns…they…sand it down to make it white and then fill it with cement but not to the top…. On top, then they add melted wax."* APP

Alternatively, the tusk's cavities may be stuffed with other ivories, metal, or stones (see also Moneron & Drinkwater, 2021). However, three PPPs, an APP and RP, make clear that such tricks cannot be used on experienced buyers and doing so may ruin the trust between parties in established chains. Moreover, a substantial downgrade from historical bulk orders to a few tusks, often processed into pieces, allow the buyers to individually inspect their purchase:

> *"But you know, before, they used to get a lot of teeth, so someone wasn't very observant to see what was inside. But these days…you get just like two or three tusks. You must take the time to check it properly and reduce your risk."* RP

The market dynamics outside the rural exchange are discussed next.

10.3.4 Market Dynamics and Price from Rural Buyer to Urban Fence

This sub-theme explores the top face of the *Market* component in Figure 26 – *the sale from one fence to another*. The data on the transfers and sale of goods from rural to urban SIMs are presented here. However, the data begin to thin at this stage of SIMs as reputable operators take extreme measures to ensure their discretion behind legitimate camouflages.

As this study was unable to secure interviews with urban fences, it relies on the data presented by enforcement participants with experience in arresting fences and APPs and PPPs who progressed from *fundi* to transporters delivering the tusks for urban and regional demand. This process is complicated to ensure the fences' discretion and profits, as evidenced in the opening quote.

Once a rural buyer purchases the ivory, the following outcomes may occur:

- The tusks may be collected from the rural buyer by an urban intermediary.
- The urban fence may store the tusks.

- The urban fence may process the ivory to disguise it for export (Section 10.2).
- Without instructed intermediaries, negotiations in disorganised chains may take place over the phone using the commodity codewords for ivory (Ch.6).
- Two urban fences in disorganised chains may meet in person to negotiate and then exchange at a different location.

Table 42 provides the data evidencing these outcomes, which are contextualised and discussed thereafter.

Table 42: *Disguising stolen ivory for transport in urban environments*

Urban market dynamics	**No. of mentions**	**Supporting quote**
		Disorganised Chains
Hotel	1 OSP	*"They meet in a hotel…because…you have to meet somewhere where tomorrow you won't see me there again.*" OSP
Public location	1 PPP	*"And then when you reach, he tells you to come someplace…come till the fish* [a well-known roundabout]." PPP
Carried on a person	1 RP	*"…last year, a mama was caught carrying it at night. They were cut around 30cm and put in plastic bags…. So, it's like someone could be paid any amount so that they will carry it* [to a pick-up location]*."* RP
		Organised Chains
Exchange cars	1 OSP 1 PPP 2 RPs	*"A car that has been fully loaded…that car number one is driven…from* [the village] *to Dodoma…Dodoma, the package is transferred…to car number two…. When it gets to Morogoro…he is told to leave the car…*[and] *the keys there…another person comes to drive the car up till Dar-es-Salaam outskirts…you then transfer it to car number three…it travels…into Dar-es-Salaam…they are ordered to leave the car there…. The car is then driven by someone else…to where the goods will be stored…the last person to drive that car was a national of China....he took it to the very last person. You will be told to go and pick up the car where you left it…and find that the load has already been taken out."* RP
		"Once you reach…he comes with his car, he parks near you, he gives you keys, you give him yours, he switches it on. He doesn't want you to know where he is taking it. You stay…in his car. He goes and hides it. Okay? [L: ehhe], he returns your car to you. You exchange keys." PPP

Concerning ivory disguised as commodities, lorries may go directly to the storage location, or an urban intermediary may collect the ivory. The rural intermediary and urban intermediary exchange cars loaded with ivory in an organised chain, as explained in Table 42. This ensures an extra layer of protection as the rural operators do not know where the ivory is stored or who the final fence is. However, disorganised chains run parallel, and the ivory may be carried

on a person, or intermediary urban fences may negotiate in public locations and hotels. Of note is the change in concealment from the sulphate bags that blend into rural vicinities to packages, luggage and plastic carrier bags that are better suited to urban environments.

At these locations, the tusks may be stashed again to ensure a substantial volume to warrant international transport costs or conditions with lower risks of exporting the contraband. These locations include legitimate business warehouses or private farmhouses:

> *"So, we found that a whole store was full, it was about 86…so they must have killed like 40 something elephants, 43. It was a long time of collecting."* PP

Intermediary urban fences may also stockpile for larger volumes while shopping for the right price to sell to a fence capable of international disposal:

> *"…a Chinese person, he does not simply just take like…three kilograms. Collection-and-assembly…*[name] *and the likes of him accumulate…and once they are plenty stocked up, the Chinese is informed…. They come and take the whole load."* RP

Transport from one urban location to another again necessitates a similar disguise using legitimate commodities (Section 10.2).

Regarding the price at this stage of SIMs, Western SGMs inform that the fence buys at a third of their selling price (Sutton, 1998, 2014b; Steffensmeier, 1986; Quennell, 1966). Titeca (2019) reports a 30 to 70 USD increase in urban prices in Uganda. The same was not found for Tanzanian SIMs.

The data in this study inform the urban price from one fence to another is marked up to 500,000 TSh (216 USD) or 600,000 TSh (259 USD) – an increase of 87 to 190 USD when compared to rural sales:

> *"…but if you go to the towns now, you will be quoted even five lakhs."* APP

The data inform that advance payments for transport costs may complicate this sale from one fence to another. Akin to *fundis*, the marketers' advance sums will be deducted from the final payment, as experienced by a PP during a reverse sting operation:

> *"So, us we told the team: 'I need the money first, like three lakhs for the purpose of loading the goods, onto a car."* PP

It is also possible for the urban price to remain in the rural range of 160,000 TSh (69 USD) to 300,000 TSh (129 USD) as it goes directly to the buyer (Table 40):

> *"…the value was around…80–70 dollars USD. Maybe 180,000 or 170,000 T-Shilling [sic], but not less than 160,000 per kg…."* OSP

Nevertheless, the price is ultimately determined when international buyers place the order and negotiate the price with local urban fences. The urban fence then decides when and at what price (ensuring their profit margin) they will purchase the tusks (Mayhew et al., 1976; Sutton, 1998). In the case of SIMs, it is highly unlikely that sellers approach buyers they do not know (Sutton, 1998) as SIMs are heavily dependent on vouched-for networks, snowball introductions and relations built over time (Cromwell & McElrath, 1994; Mayhew et al., 1976; Sutton, 1998).

10.4 Theme 4: Disposal, International Prices and Methods of Payment

The final theme of the chain of transactions is disposal via regional or international export, as depicted in Figure 27.

Figure 27: *Chain of transactions for SIMs – Disposal*

Theme four presents critical, albeit limited, reflections on the participant's responses on international prices and how international buyers pay urban fences. For participants' responses on the destination of international markets and the products made from ivory, see Appendix 3. Finally, this theme concludes with an overview of the whole chain of transactions for SIMs.

Participants are aware of existing markets that fuel their motivation to operate in SIMs. However, their international understanding is limited, with a PP and an OSP voicing pity for local poachers and the low *deceived price that "we have over here"* (PP), especially given the effort and risk involved in stealing from elephants:

> *"The conversations I have had with them, they are like, are you serious…. They have an idea that it's worth something but not that level…. Honestly, it's very sad."* OSP

Many PPPs have attempted to increase their knowledge of international markets, but intermediaries and fences discretion have hindered such efforts:

> *"Ahh, I tried very hard to ask that these tusks…where they go, what is made from them that the price increases as soon as they reach? So now anyways [sic], I don't have much knowledge."* PPP

Aside from the PPPs, many RPs, PPs, and OPS were also unable to inform on the dynamics and prices of international markets, candidly stating, "*I don't really know, I would be lying"* (RP). Only one APP was able to explain the price outside of Tanzania:

> *"In South Africa, they sell one kilo for 800,000 TSh* [345 USD] *in China, one kilo for up to 1,500,000 TSh* [647 USD]*."* APP

Although Sutton (1998) states the importance of retail prices in determining the volume of bought and sold stolen goods, many individuals in Tanzanian SIMs operate with a limited understanding of retail prices. The urban fences who dispose of the tusks are at liberty to buy at a low price, ensuring a substantial markup and profit margin during international sales.

Table 43 shares the responses concerning the process of international money transfers with the inclusion of the lesser-known Hawala system (also known as Hundi system) or the flying money system equivalent in China (El-Qorchi, Maimbo & Wilson, 2002; Jost & Singh Sandhu, 2000; Omer, 2002; Sander, 2004).

Table 43: *International payment for ivory during disposal*

Method of payment	**No. of mentions**	**Supporting quote**
Bureau De Change	1 APP 1 OSP	*"I had sent money…through the bureau de change…. One name was the same as this one white guy's name whom they were following up with* [for purchasing ivory]*."* APP
Telegraphic Transfer Money (TT)	1 APP	*"So, he sent me from America by TT money, so it turned out to be the name on the transfer from that person dealing in trophy matters….* [They] *concluded that I am receiving money from the trophy dealer."* APP
Hawala	1 PP 1 OSP	*"…from abroad…the money will usually come through Bureau de Change or through Hawala."* OSP

The Hawala system is challenging to monitor and is the preferred option for illicit businesses. However, further research on Bureau De Change and telegraphic money may allow for transnational crime investigations.

It is evident that there is a limited understanding of international SIMs within these data, but some disposal components are discussed, allowing the following section to present the complete chain of transactions for Tanzanian SIMs.

10.5 An Overview of the Chain of Transactions

The data presented by the participants of this study bridge the knowledge gap on local Tanzanian SIMs (Ch.2 & 3). Existing literature can step away from simplified accounts of poacher-to-exporter, sometimes through an intermediary, and instead note that Tanzanian

SIMs have urban and rural entrepreneurs who incur extensive costs and are planning to overcome the risks of SIMs.

Figure 28 presents the complete chain of transactions for SIMs within the scope of this research and disposal out of Tanzania. USGs and stolen ivory follow the same chain with limited variations in the minutiae. The data brings to the forefront the fragmentation of the market between rural and urban sellers; the integral role of transportation and the changes in operation due to developmental advances (mobile phone network and motorbikes); the influences on floating market prices, such as advance payments and provisions of firearms and ammunition; and that such influences may be more integral than the tusks' aesthetics in dictating the price as previously believed.

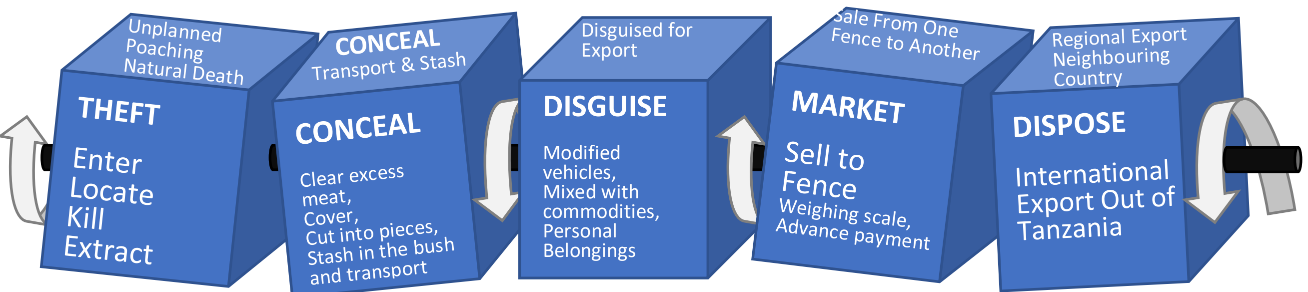

Figure 28: *Chain of transactions for SIMs – Theft, conceal, disguise, market, dispose*

As a result, this study concludes that the MRA is vital for systematically analysing in-depth qualitative interviews with operators in illicit markets. As Sutton (2010) suggests, the decisions made, and the details uncovered for each stage of the *permutator* must be considered to inform locally tailored market reduction strategies (Ch.12). Moreover, in concluding the chain of transactions, it can be recommended that a further MRA is applied to transition countries and end-consumer countries to present a whole picture of the movement of illegal ivory after export from Tanzania. It can be noted here that some permutator blocks may repeat in transition and end-markets dealing directly with end-consumers.

Seen through the MRA, the findings for SIMs indicate multiple operators and markets. In the subsequent chapter, the MRA allowed this study to outline operator and market typologies.

Chapter 11: Beyond the Chain of Transactions: Typologies and Target Selection

The MRA proposes market, consumer, and distributor typologies to better understand the who and where the operators are to adjacently inform where and how the prevention strategies should be targeted.

Theme one uses the previously explored analysed data to propose the distributor and the market typologies in Tanzanian SIMs and overlaps, if any, with SGMs. After that, the data are used to propose locally tailored market reduction strategies in Chapter 12.

Theme two explores the supplementary aim defined following data collection, pertaining to target selection during theft (Ch.1 & 3) through CRAVED and CAPTURED theft models (Ch.3 & 4) before concluding the chapter.

11.1 Theme 1: The Distributor and Market Typologies for SIMs

Using the data that relates explicitly to the typologies of SIMs, this section presents the following sub-themes (Ch.4):

- Typology of the distributors in Tanzanian SIMs
- Commercial Fence Supplies
- Commercial Sales
- Residential Fence Supplies
- Network Sales
- Stealing-to-Order
- Final Remarks on Typologies

Some initial similarities and differences between SIMs and SGMs should be considered before progressing to a refined discussion of the typologies. For instance, SIMs and SGMs have operators who steal on order and steal-to-offer. The main difference is in the final disposal, where SGMs suggest sale to a consumer, but for this study, it implies export out of Tanzania. Consequently, this study does not present a typology of consumers as the personal use of ivory in Tanzania is almost non-existent (Ch.2 & 7). Alternatively, Chapter 2 presents the existing literature on international consumers. Moreover, SIMs include foreign operators who enter Tanzania legally or illegally to poach or trade through a local host (Ch.8 & 10) and Tanzanian operators who function in neighbouring countries.

11.1.1 Distributors in SIMs:

Considering the data presented thus far, this study found the following distributor typologies overlapping those of SGSs (Ch.4).

Distributor I: Buy stolen goods to sell or sell for a commission. Do not steal (Sutton, 1998). This typology relates to the rural fence, transporter, other intermediary buyers, and the final fence who will export the ivory.

- **Rural fence** buys to sell (possibly through a local host). They do not enter the bush to poach ivory.
- The urban distributor instructs the **transporter** to buy from the poaching team (possibly through a local host and possibly for payment upon delivery). They do not enter the bush to poach ivory.
- Rural or urban **intermediary** buys from the rural fence to sell forward.
- The **final distributor** or exporter procures ivory to sell internationally.

Distributor II: Steal to sell and buy to sell. May sell for a commission for other thieves (Sutton, 1998). This relates to the *fundi-fence,* a capable shooter and trader in SIMs. The *fundi-fence* can also instruct other shooters to deal forward or deal with other *fundi-fences,* including those from neighbouring countries. This distributor may also assist other ivory thieves to sell forward or vouch for their integrity to other buyers for a commission.

Distributor III: Steal to sell, do not buy to sell. May sell for commission for other thieves (Sutton, 1998). This typology pertains to the shooter or *fundi* who does not buy to sell but may assist other poachers, or those with ivory from naturally dead elephants or by-catch elephants, to sell forward to their network for a commission.

Distributor IV for SIMs: Do not steal to sell, do not buy to sell. Introduce the buyer to the seller for commission (potentially even at five times the price paid to the shooter), referred to as the *marketer* in the data (Ch.10).

Theft occurs as the poaching teams rely on the readiness of the distributors to buy. The distributors' readiness, in turn, is determined by the demand from international distributors. Therefore, the trickle-down market determines the theft of ivory in Tanzania. This relationship between the distributors is depicted in Figure 29.

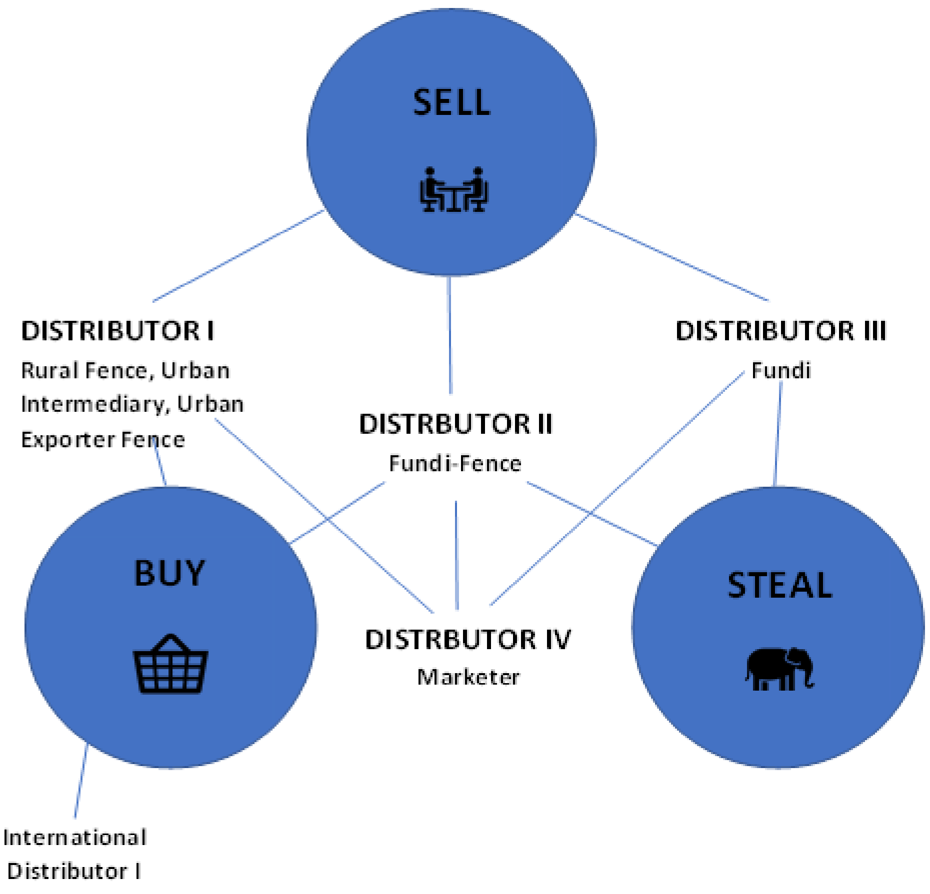

Figure 29: *The distributor typology for SIMs*

The market typologies discussed in the following section differentiate how the various distributors operate in SIMs compared to SGMs.

11.1.2 Commercial Fence Supplies

This market applies to Distributor I and potentially Distributor II, III and IV. Distributor IV (*marketer*) may be approached in their retail space by buyers to assist in procuring ivory.

There are, of course, some essential differences between SIMs and SGMs for this market type. Firstly, in SIMs, poachers cannot openly approach legitimate shops to sell tusks *over the counter*. Instead, SIMs may be operationalised in back rooms of shops or other legitimate businesses, as also found for SGMs (Sutton, 1998).

Table 44: *Commercial fence supplies – distributors' legitimate business facades*

Distributors and legitimate business fronts	**Supporting quote**
Distributor I all	*"…that business…they could use to actively be involved in contributing to their communities' development, and they become honoured and respected for it…but they are a camouflaging what they really do…people don't know that they actually engage in criminal activities...behind the face of a legitimate business."* RP
Distributor I rural fence and transporter	*"…she was a nurse and was transporting elephant tusks in a bus...she said that the business is done by the doctor…whom she sells it to…people are two-faced. They can say they do one thing, but they actually do something else."* RP
Distributor I urban intermediary	*"Chinese people were…local businesspeople selling shoes, chicken…they had a lot of businesses…in the daylight, they attend their local businesses, but at night they are poachers. Or they work…with the poachers…."* RP
Distributor I exporter	*"…most of these buyers are wealthy businessmen… But in reality, once he gets the load…he travels to these countries as business trips…."* RP
Distributor II *fundi-fence*	*"…but really, he also does business in different things with different people…. He hides and comes under the impression of the business that can be seen."* PPP
Distributor III *Fundi*	*"…even ordinary citizens fail to identify them because they are secretive, and they hide it…in the morning, they are different people. They are shocked when they discover that that person has been arrested."* PP
Distributor IV *marketer*	*"I had a shop there, and we knew the people there well…. They came to my shop and said, you are a local here. We know that you may know the elephant shooters… so I took that job as a marketer."* APP

It is vital to note that commercial fences in Tanzania may have multiple depots across Tanzania. Using these legitimate businesses, SIMs share many overlaps with SGMs. Firstly, as aforementioned, for the reason of *backdoor dealings*. Secondly, it is uncommon for a poacher or a thief to approach a commercial fence without prior knowledge that the business is open to purchasing illicit goods (Sutton, 1998). Rarely when the thief is looking for quick cash will they approach a commercial front with no prior knowledge, as found with SIMs:

> *"If the poacher is strong-blooded, he could go to towns like Dar-es-Salaam to get more money, but the risk is much bigger there. Many times, they arrest people like that."* APP

Thirdly, Sutton (1998) found that commercial fences may also conduct illegitimate sales using car boots or other pre-arranged locations to minimise risks and protect themselves. This study finds the same (Ch.9 & 10). A fourth similarity is that a commercial fence may develop long-term relationships with intermediaries and/or thieves (Sutton, 1998). In turn, the seller can approach the commercial fence or vice versa, as also found for Tanzanian SIMs:

"Yeah, he returns, you see, they exchange numbers…. 'I have got the load, come'." PPP

The first variance is that in SIMs, the commercial fence looks for a rural fence or transporter who then searches for a shooter. Therefore, there is an open flux of approachability between the intermediaries and the thief, rather than the poacher approaching the commercial fence (see also Mmahi & Usman, 2020). There are, of course, possible outcomes where a rural fence approaches a commercial buyer through their network or where *shooters* connect with rural intermediaries through their network.

A second comparative point is the exchange of information from fence to thief (Cromwell, Olson, and Avary, 1991; Sutton, 1998). This study found no information directly exchanged from commercial fence to poacher (Alden & Harvey, 2021, p.21). The study does, however, evidence that the *fundi* can purchase information from corrupt wildlife officials and that the fence may support the theft through other means such as supplies, advance payments and assistance during arrest.

The final and integral difference is the presence of non-professional fences in SGMs that may buy stolen products when the opportunity presents itself (Chambliss, 1984; Sutton, 1998). This study did not provide evidence of the role of non-professional handlers in SIMs due to the risks of approaching an unknown handler.

Commercial fence supplies are an integral typology in SGMs and SIMs, although with minor discrepancies between the two. Due to this overlap, the MRA's recommendations for disrupting commercial fence supplies are explored in Chapter 12.

11.1.3 Commercial Sales

For SIMs, Distributors I and II can sell to other distributors (Figure 29).

The primary limitation is that ivory cannot be rebranded or "sanitised" as USGs can, nor can the fence issue receipts to legitimise illicit sales (Klockars, 1974; Sutton, 1998). Although, this process may be possible in end-markets through the camouflage of legal or mammoth ivory (Ch.2). Additionally, a buyer can rarely claim to purchase stolen ivory unknowingly. The exception is ivory acquired under the pretence of corrupted permits (Austin, 2019).

Equivalent to the findings of this research, Sutton (1998, p.35) states that the *"Commercial Fence has somewhere to store the goods, can transport them and has access to an existing customer base"*. Some organised rural fences may execute the same organisation as urban fences but for a lower volume of ivory.

Owing to the importance of a fence's ability and reliance on storing ivory, the data confirms that commercial sales apply to Tanzanian SIMs. Therefore, market disruption by the MRA may be plausible for commercial sales in SIMs (Ch.12).

11.1.4 Residential Fence Supplies

Ivory is sold either at their temporary residence or other pre-arranged locations. The residential fence relies on personal networks and their residential location to conduct the trade (Sutton, 1998; Wright &Decker, 1994). As the data suggest, some fences may stay in the village guest house or with a host for several months, scouting for shooters and procuring large volumes of ivory (Ch.8, 9 & 10). As in SGMs and SIMs (as found by this study), residential fences are often approached by poachers who know their lodging. Often, the residential fence is well established rather than "occasional 'opportunistic' participants of SIMs, as they are willing to procure the cost of temporary residence in rural areas.

Alternatively, a known poacher may become a residential fence when opportunist collectors approach them for assistance and access to SIMs. Here, an additional overlap between residential fences in SGMs is that some may also be burglars (Sutton, 1998), while the SIM equivalent is the *fundi-fence*.

This market also applies to urban buyers who store ivory in personal farmhouses, for instance, or personal urban property, without the added security and façade of a legitimate business (Ch.10). Another distributor may collect the ivory from the residential property akin to SGMs. Another similarity is that residential fences rarely deal with strangers, as also found for SIMs. This market typology is integral in all distribution levels of SIMs.

Sutton (1988) found that residential fences in SGMs were well off in the Western term of mortgages and families. Herein lies the similarity and difference between SGMs and SIMs, as the residential fence could be someone in a village or city with varying wealth. A further difference is that residential fences in SIMs may adopt a layer of protection by training household staff to allow them to observe the risks of a residential sale:

> *"…*[the buyer] *puts a station or a base…. Fundi, he comes to that boss…*[the staff] *says, 'he has left for a bit.' Fundi says: 'Eh, bwana find me this person bwana we have returned I have left my colleagues there we have got the load of this volume.'"* PPP

The following security layer may not apply to the Western context as household sizes are smaller and often not attended to by permanent staff.

An additional difference is that residential fences in SGMs may sell to relatives, friends, or relatives' friends. However, with little use for ivory in Tanzania, this option is likely not plausible. Moreover, it remains unclear if the price varies depending on the market type in SIMs or if residential ivory fences are more likely to buy and pay than commercial fences, as found in SGMs (Sutton, 1998).

On the other hand, another similarity in both the commercial and residential is the fence's ability to limit the number of suppliers to reduce their risks of detection (Sutton, 1988). In SIMs, the number of instructed suppliers decreases as the chain progresses from the source

to export. For instance, the rural fence may have multiple shooters to source ivory, but the urban intermediary may only have a few rural fences, and the final exporter may only deal with one intermediary.

Conclusively, this typology was in the realms of speculation and assumed plausible for SIMs. However, with the data from this study, it can be confirmed that residential fence supplies are an integral component for Tanzanian SIMs, albeit with some minor differences from the residential fence in SGMs.

11.1.5 Network Sales

Network sales can: rely on an individual's connections, including neighbours, family, friends, and workmates; occur anywhere at pre-arranged locations; overlap with the other typologies; encompass ordered-theft of goods; and take place with all types of fences (Ch.4). This market type is evident in Tanzanian, evidenced by the reliance of opportunist poacher on established *fundis* to sell their ivory; the kinship within poaching teams; the need for trustworthy relationships between buyers and sellers to minimise the risk; the exchange can take place anywhere; commercial and residential fences in SIMs can use network sales; and most importantly is the ordered-theft of ivory (Ch.9 & Section 10.1.3).

Network sales apply to goods traded along the network until one of the buyers becomes the final consumer. For this study, this is relevant up to the stage of the final distributor and exporter.

Another critical difference between SGMs and SIMs is the influence of *word-of-mouth,* which leads to more demand in network sales (Sutton, 1998, p.38). This does not apply to ivory as it is illegal and is not highly demanded in Tanzania. Alternatively, word-of-mouth pertains to a *fundi*'s reputation and the resulting demand for their service without impacting the amount of ivory demanded. Although word-of-mouth of a semi-permanent buyer in the vicinity may lead to increased theft, but not always, as one PPP explains:

> *"…the buyers, they all know each other, so if…I sold them to another person…that person he can tell you that I sold him the goods. So, it becomes a problem. So, it must be just you and me. And you must only sponsor me."* PPP

Network sales are also the enablers of many successful sting operations as they allow new operators into SIMs through intermediaries:

> *"I went as a buyer…. He asked where I got the information...I told him that there are many troubles in life and that I have been looking for this thing for a long time…someone they know told me about that. And he said, okay, it's fine, let's meet up if you're serious about this."* RP

As the presence of a potential buyer could increase the theft of ivory, reverse sting operations may be better suited (Ch.12).

11.1.6 Stealing-to-Order

A thief may be ordered to steal items in short supply in illicit markets or highly desirable goods regardless of the abundant supply (Sutton, 1998). Theft-on-order for ivory is akin to shoplifting for specific USGs rather than burglary (Sutton, 1998; Ch.4). In such cases, the *fundi* is motivated to undertake extensive expeditions to meet the requested volume or specific tusk sizes within a certain amount of time for an ensured payment and access to a buyer.

As found for USGs, the ordered execution of elephants is based on advance payments and price negotiations. At the core of stealing-to-order in SIMs are: advance payments; personal loans; supplies for poaching; assistance during arrest; and bail or bonds payment. The fence may use this system to keep the poacher or transporter indebted while allowing the fence to continue ordering ivory.

In SGMs, consumer-approaches-fence (commercial, network or residential), then fence-approaches-thief. In SIMs, international distributors approach a local fence (commercial, network or residential), a local fence contacts an intermediary, intermediary-contacts-*fundi, and* the *fundi* then recruits his team. Once relationships are established, intermediaries or fundis can contact the fence directly at their residential or commercial premises or other pre-arranged locations. At the same time, the fence can order the theft of ivory through an intermediary or a shooter. Stealing-to-order is integral to Tanzanian SIMs, with each distributor increasing the item's price to ensure profit.

11.1.7 The Relationship Between the Typologies for SIMs

The purpose of the MRA in devising and framing the data for distributor and market typologies is to ensure a better understanding of transactions and SIMs. The relationship between the market typologies is depicted in Figure 30, while Table 45 summarises the role of various distributors in the market typologies.

Hawking markets and e-commerce sales have been omitted as the data did not support their role in Tanzanian SIMs. However, hawking markets are aimed at those who knowingly buy stolen goods, such as the buyers in SIMs (Sutton, 1998). Therefore, some prevention options may be relevant to SIMs (Ch.12). The market typologies of commercial fence supplies, commercial sales, residential fence, and network sales all accommodate the SIMs, albeit with minor differences from USGs.

Table 45: Market typology and distributors for SIMs

Market Typology	Distributor			
	I	II	III	IV
Commercial Fence Supplies	✓	✓	✓	✓
Commercial Sales	✓	✓	✓	
Residential Fence Supplies	✓	✓	✓	✓
Network Sales	✓	✓	✓	✓

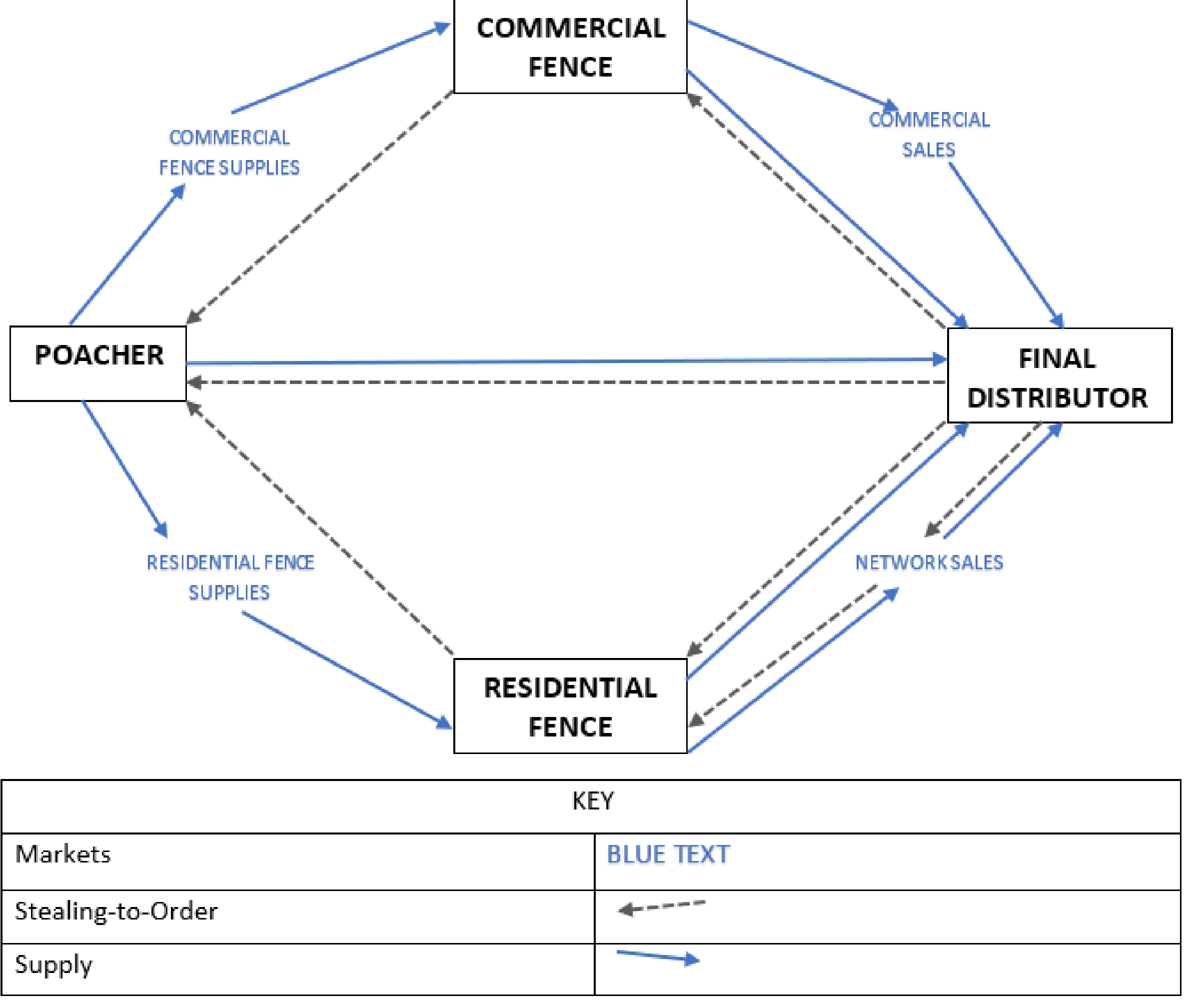

Figure 30: *Stolen ivory markets*

These differences are predominantly based on this study's focus on a specific product rather than multiple USGs. However, the MRA understands that some products necessitate extensive forays and specificity, such as jewellery theft or bank robbery, catering to SIMs. This is in addition to the MRA's incorporation of stealing-to-order, which is vital to SIMs.

Moreover, the MRA's typology of distributors is adaptable to Tanzanian SIMs, including the addition of Distributor IV, which is readily incorporated into the matrix (Figure 29). This further highlights the importance of the MRA's flexibility in conjunction with the understanding provided by the permutator model (Figure 7 & Figure 28). As aforementioned, the consumer typology does not pertain to this study but may be incorporated into future research (Ch.12).

The purpose of the MRA's understanding of the distributors and markets typologies and the permutator model is to ensure that before proposing crime prevention strategies, the following are acknowledged: how the markets operate; where the markets are; and who participates in the market. This study presents the equivalent for Tanzanian SIMs, and what remains now are the proposed strategies in the subsequent chapter. However, before proceeding on the chain of transactions, the next theme addresses the additional aim of target selection and the other harms caused by SIMs (Ch.1).

11.2 Theme 2: Target Selection and Other Harms

The theme here details how this study's data on the chain of transactions informs the CRAVED and CAPTURED models for target selection during a theft. The analysis here has implications for market disruption (Ch.12). For other harms, including: the unintended outcome of purposive action; how poachers use the income from SIMs; other crimes committed inside and outside the bush; and altercations between the operators of SIMs see Appendix 3.

11.2.1 Target Selection in SIMs: CRAVED and CAPTURED

This sub-theme explores how the data informs the previous exploratory analysis of both models for ivory by Moreto and Lemieux (2015a; see Ch.3 & 4; Table 3). The importance of doing so is that if at least one of these components is altered, it may deter crime regardless of the presence of guardians. Therefore, it is essential to understand which model accommodates this study's data (Table 46) before proceeding to mitigative strategies (Ch.12). The CRAVED components, as informed by this study, are not shown in Table 46 as CAPTURED caters for the integral components.

Tracking, shooting, extracting, and transporting to a buyer is often grouped as a single movement in the existing literature. There is a role for a long-term MRA in illicit wildlife markets to uncover what is previously believed to be understood but, in reality, is more complicated. This research uncovers additional layers in the bush, including the processing of ivory before it is delivered to a rural fence that the CAPTURED model can detail.

Table 46: CRAVED, CAPTURED and SIMs

Chain of transactions informed by this thesis	Moreto & Lemieux (2015a) CRAVED	Moreto & Lemieux (2015a) CAPTURED	This thesis CAPTURED
1: Theft and extraction	Available, Removable, Valuable	Available, Useable, Removable, Desirable	Available, Useable, Removable, Desirable
2: Conceal, transport and stash in Bush	Not Proposed	Not Proposed	Concealable, Processable
3: Bush-to-buyer vs. bush-to-stash	Not Proposed	Not Proposed	Concealable, Removable
4: Market: sale to rural fence or transporter	Not Proposed	Not Proposed	Available, Desirable, Concealable, Transferrable
5: Disguise and transport: rural-to-urban or to a neighbouring country	Concealable	Concealable	Concealable, Processable
6: Market: sell to an urban fence	Valuable	Available, Desirable, Transferable	Available, Desirable, Useable, Transferrable
7: Stash and disguise	Not Proposed	Concealable, Processable	Concealable, Processable
8. Dispose – export	Concealable	Concealable	Concealable, Removable, Transferrable,
Craftsmanship	Not proposed	Processable	Not proposed
Sold in international retail market	Available, Valuable, Enjoyable, Disposable	Available, Transferable, Useable, Enjoyable, Desirable	Not proposed
Consumer use	Enjoyable	Enjoyable	Not proposed

The CAPTURED model states that the *processable* feature is the focal element assigned to ivory readied for export and during craftsmanship (Moreto and Lemieux, 2015a). However, this study finds that ivory is *processable* across the chain – cutting ivory in the bush or villages for internal disguise or when readying for export (Ch.9 & 10). The decision to *process* the ivory impacts the decisions on transportation and sale, making it an essential component to consider when planning market disruption tactics.

The *Theft and Extraction* stand as Moreto and Lemieux proposed (2015a). The ivory must be found to be made *available*, and it must be, in most cases, more than ten kilograms or, as

requested by a customer, to be *useable*. The tusks must be removable to allow low-risk extraction, ideally away from ranger patrols and posts.

At the second point, the data suggest that extracted ivory may be *concealed* for transport within the bush. Although the ivory may be carried openly. The ivory may be *processed* into pieces as per the buyers' orders or to make it easier to transport. *Transferability* was considered here as the ivory may be confiscated by corrupt officials to be sold into SIMs. However, the ivory is most likely not paid for in that instance, so *transferability* was decidedly omitted.

In the third stage, *from bush-to-buyer or bush-to-stash*, ivory is *concealed* and *removed* from the PAs, preferably at night. However, ivory may also be carried without concealment at this stage, depending on the teams' risk assessment (Ch.9).

The sale to a rural fence is similar to the proposed *available*, d*esirable, transferable* components by Moreto and Lemieux (2015a). However, according to the data, *concealability* is an additional integral factor, as ivory may be disguised in bags for exchange. In addition, this study proposes adding the *concealability* and *processable* component at stage five, where the ivory could be disguised for transport to neighbouring countries or urban fences.

In the sixth stage, *Sale to Urban Fence*, the data inform the addition of *useability* as the sale may depend on the buyers' needs as instructed by their international customers. Moreover, the ivory may be further concealed (stage seven on Table 46) for transportation to the stash location. Here, the ivory may be *processed* again into powder, for instance, for concealment during disposal out of Tanzania.

At the final stage of disposal through export, this study suggests adding removability as the ivory will only be exported when the risks are low, and the fence can load the contraband on legitimate cargo or disguise it on a person for air travel. Moreover, this stage depends on the *transferability* of having a willing buyer in the destination market.

Sutton (2010) states that the readily available and removable factors may not warrant theft. In the case of ivory, this holds as the value, and the market of ivory drives the desire to invest the effort and cost needed to steal from elephants and PAs successfully (Ch.7 & 8). However, this study’s findings suggest that technology, although not impacting the available and removable factor directly, is indirectly assisting in making it easier to poach (Ch.9 & 10).

Sutton (2010) states that enjoyable, disposable, and valuable products will profit thieves when the ivory is disposed of. This may be true for processed ivory in end-markets and as shared by Moreto and Lemieux (2015a) under *Craftsmanship, Sold in International Retail Market* and *Consumer Use*. Speculatively, there may be concealability during Craftsmanship as the carver disguises illegal ivory as legitimate. Moreover, before *craftsmanship,* CAPTURED could also consider transit countries where *concealability* may also be a factor. An MRA in these markets and locations may inform CAPTURED in transit and end countries.

In conclusion, this study finds CAPTURED and the additional *processable* integral through the chain of SIMs. By extending CAPTURED (Moreto & Lemieux, 2015a) to the findings of SIMs, this study has identified a more nuanced representation of the significant decisions of the actors of SIMs operating in the MRA's defined stages of the chain of transactions. In contrast, the CRAVED model may be better suited to IWT species, such as birds, where poachers face multiple target options akin to USGs (Pires, 2015; Pires & Clarke, 2012).

11.3 Concluding Beyond the Chain of Transactions

Chapter 11 has considered the typologies of distributors and markets of SIMs as informed by this study's data. The chapter also addressed the additional aim of understanding the target selection for theft. It can be concluded that the CAPTURED (Moreto & Lemieux, 2015a) model accommodates the chain of transactions for SIMs in Tanzania. Moreover, this study finds that, similar to SGMs, there are other harms caused by SIMs, as presented in Appendix 3. These data and those present in the previous chapters are used to inform crime prevention strategies discussed in the subsequent chapter.

Chapter 12: MRA, Decolonisation and Sustainable Impact Investment: Reimagining Strategies to Disrupt Tanzanian SIMs

Although this study initially aimed to fill in knowledge gaps on local markets, the data collected informs market reduction. Relying on the critical discussions in preceding chapters and drawing on respondents' proposals from the fieldwork, this chapter aims to provide a locally-tailored framework that reimagines strategic approaches of the MRA alongside a decolonised approach adopting sustainable impact investment to mitigate Tanzanian SIMs.

This section discusses the strategies in four stages. First, the chapter presents the participants' responses on how to mitigate SIMs (*Theme one*). Secondly, *Theme two* explores the proposals for SGMs aligned to the overlaps with the typologies of SIMs. *Theme three* explores the data on the chain of transactions for market reduction tactics (Ch.9 & 10), and *Theme four* proposes market prevention strategies based on the data on motives to poach, supplies and recruitment (Ch.7, 8 & 10).

Thirdly, this chapter presents further recommendations from a decolonised lens to avoid the lack of nuances from the past. This is informed by the data collection and innovative propositions from sustainable impact investment (GIIN, 2021; McCallum & Viver, 2021).

Finally, the chapter presents a tabulated and comprehensive list of the proposed tactics akin to that shared by Sutton (2010, p.9-31; Ch.4).

12.1 Theme 1: How We Can Prevent SIMs – Participants' Responses

> *"…it should include simply asking local people about what solutions would work best."* (Ro, 2020)

Theme one shares the participants' direct responses on how to mitigate SIMs, which included: addressing the misuse of power; the need for trust in public bodies; an emphasis on socio-economic factors; and for others, it was about scrutinising the current schemes. There is substantial overlap with the motivational and guilt-neutralising factors for operating in SIMs (Ch.2 & 7). The importance here is that understanding the participants' propositions allows for a discussion on how they may agree or disagree if any tactics or policies are proposed in reality.

After analysing the data, a number of sub-themes emerged, including:

- Proposed strategies for other countries with SIMs.
- Proposed strategies for rural participators of SIMs, including the broader issues of weak governance and animal rights.

- Proposed strategies for urban SIMs.

The data here also included the enforcement responses, which often detailed a need for increased resources, including staffing, cars, training and firearms and ammunition. These have not been detailed here as they were perceived as a suggestion for TANAPA rather than the MRA.

12.1.1 Strategies Proposed for Other Countries

There was a consensus from all participants that if there is no market, there will be no poaching. As markets exist outside of Tanzania, the responses suggested curbing international demand (two OSPs; two RPs; two PPs) and longer sentences for poaching and trading in neighbouring countries (two OSPs). Concerning neighbouring countries, there is potential for unintended crime displacement, especially given the cross-border pollination of SIMs:

> *"I would like to see them changing their…laws…to replicate what we have…because, as you see, most of the poachers…are going to operate in Burundi, Malawi, Zambia and Mozambique because they know for sure if they are caught here in Tanzania, they will not see the daylight, not for another 30 years."* OSP

Although such pan-national collaboration would encourage region-wide policy, it is lengthy and possibly improbable given the doubtfulness of influencing sovereign nations to address their laws (Fyumagwa, 2015). Furthermore, as demonstrated by the UN COP26 Climate Change Conference, even if agreements are reached, there remains a wide 'implementation gap' between policy and practice. Similarly, addressing the international demand by changing the perceptions of ivory as a socially unacceptable product is a long-term generational strategy that may or may not be achieved (Ch.2).

Of even greater consideration is that even if poaching is non-existent, once the elephant populations increase, they will be culled, allowing buyers to access legal or illegal tusks:

> *"…those that are dissident they can go because there are countries where…the elephants have become too many…. If the buyers were unable to procure* [tusks] *everywhere, that would be it! They would leave it. But now some countries want to reduce their animal populations."* PPP

Therefore, SIMs will always exist and will continue to be operationalised through legal sales or illegal poaching. Related to a ban on ivory sales, the participants' responses are shared in Appendix 3 (see also Heltberg, 2000; Lemieux & Clarke, 2009; Meijer et al., 2018; Perrigo, 2018; Wang et al., 2020b; Xiao, 2018).

The general agreement in the data is that the ban is disrupting Tanzanian SIMs. However, there is a recognition of the challenges posed by market displacement in the absence of multilateral bans and increased prices, which motivate poachers. The data advise that the

latter necessitates supporting strategies such as increased protection. Given the challenges, it is possible to conclude that the bans do not embed a permanent paradigm shift in how society conceptualises ivory.

Additionally, this study recognises a need for an MRA when a ban is enforced to monitor and allow policy and enforcement efforts to be drafted to manage, in real-time, the unintended outcomes of a ban. A resulting regional MRA may reduce the strain of resources and the costs for individual countries while providing collective responsibility, accountability and governance and simultaneously exposing the 'cloak of invisibility' that corruption thrives on.

12.1.2 Strategies Proposed for Rural Participators of SIMs

In assessing what can be done at a rural level, respondents recognised the importance of employment opportunities, small loans, compensation for HEC, and education, as presented in Table 47. These recommendations overlap existing strategies (Ch.2) with limited beneficial outcomes, as discussed in Table 48.

Table 47: *Strategies proposed by participants for rural participators of SIMs*

Strategy	No. of mentions	Supporting quote
Employment outside of tourism	6 PPP	*"…we should try and help all the young people get employment…with the government…but also employment and projects in the villages…. This could reduce the excitement and eagerness to go to the bush."* PPP
Employment in tourism	2 PPP 2 OSP 2 RP	*"…announcing vacancy in the national park, they should not take people from far they should take priority of the people living nearby…to decrease the number of working poachers."* OSP
Education	2 PPP 1 APP 1 OSP 2 PP 3 RP	*"Ah, what this needs the most is to provide knowledge and education to make small-small employments…."* PPP
Rural infrastructure	1 OSP 1 RP	*"…building schools, dispensary… Those aids help them not to feel the need to come and kill the animals."* RP
Small loans	9 PPP 1 OSP 1 APP	*"Our government has no aid…these rich people, they are the ones that buy and get lent* [money]*…[PPP…but if the government could even help us…a person wouldn't have the idea to go to the bush again]."* PPPs

Small loans are discussed in Theme six. As one might expect, the role of formal education was cited principally owing to its relationship to employment. This stand is juxtaposed with the (arguably colonial) understanding that poachers need to be educated on conservation. The local population has detailed knowledge of various habitats and animals, but some continue

to poach (Ch.7 & 8). Building on the discussion in Chapter 7, it is unsurprising that a lack of development increases everyday costs, leading to pressure to poach. However, these issues do not fall directly under the market for illegal ivory and instead focus on socio-economic considerations covered in existing literature (Ch.2) and this study (Ch.7).

Consequently, curtailing poaching at a rural level remains challenging and is symbolic of the seemingly cyclical debate on development versus conservation (Fyumagwa, 2015). Nevertheless, several private and public stakeholders have made efforts, some in partnership, to ensure compensation schemes for HEC, increased education as formal schooling and conservation awareness, and small loan delivery. However, many respondents highlight the downfalls of existing schemes as presented in Table 48 (see also Ch.2).

Table 48: *Participants' responses to existing strategies for conservation*

Existing strategies	**No. of mentions**	**Supporting quote**
Education	1 APP 2 PPP 2 OSP 3 PP 5 RP	*"…but education, if you have hunger, it does not help. It does not finish this matter."* APP
		"You know the thing is that we want to give a lecture, but we don't want to give them anything else. They're not going to eat a lecture, you know?" OSP
Community protection	2 PP 1 RP 1 OSP	*"I mean, the executive [sic] can be a poacher. Do you really think he is going to go make arrests? So now, if the village's leader is a poacher and…he is the one* [answering to the] *organisation who…trust them to protect the PAs…it's a must that that village will have its poachers."* PP
Lack of compensation for HEC	2 OSP 5 PPP	*"I think since I have been here, there has been no person that has been paid…people carry on to be hurt...even this year, we got it recorded, but there is nothing."* PPP
Small loans	1 PPP	*"…they denied me the loan…. The lady…said I should be given the loan...till today, they haven't!... Why shouldn't I be angry? …you will find me under the sun distraught…our hunger is not addressed. I should have returned* [to poaching] *and moved away from this tension."* PPP

Small loans and compensation are discussed in Theme Six. Efforts to educate rural communities are extensive, and most participants responded that education is critical in mitigating poaching. This response may be due to over-researching in the area by NGOs, resulting in learnt responses or responses they expected the researcher wanted to hear. However, as a Tanzanian who grew up in an environment heavy with volunteers and researchers, I was determined to get beneath this veneer of learnt responses. Therefore, when pressed to elaborate if they *"believe formal education would stop someone from poaching,"* many voiced concerns that education alone is insufficient as one cannot *"eat a lecture"*.

Similar to the international ivory ban, education also requires further supportive measures from employment, potentially relying on the readily available tourism industry. However, many lodges dismissed employing from surrounding populations as they lacked the skill set needed to cater for international guests (written and spoken English, knowledge of hospitality protocols). Consequently, this study proposes impact investment funds for training opportunities (alongside formal education) to ensure employment in tourism. This is, of course, taking into consideration the implications of over-reliance on a single industry (as highlighted by the COVID-19 pandemic).

Regarding education for conservation, this study proposes a decolonised approach breaking away from the Western teachings of environmental protection. Instead, this study offers awareness of the self-victimisation pattern of poaching and HEC (Ch.7, Figure 17) to encourage villagers to discourage participation in SIMs and possibly shift the long-standing perception of elephants as the enemy. This nuanced approach with direct consequences (albeit untested) could provide a more realistic framework, especially when coupled with employment in tourism.

Table 48 also indicates that community protection is unlikely to succeed as village leaders may be involved in SIMs, akin to the (in)famous 'Thief-Taker General' (Howson, 1970; Ch.4; see also Gibson & Marks, 1995; Mbuba & Mugambi, 2011). Similarly, community leaders may collaborate with enforcement to ensure their reputation is intact, rendering community protection challenging as the leaders may use this opportunity to ensure their successes in SIMs:

> *"A village chief who is a poacher…had transported the tusks…to many countries to sell…. They are poachers completely! They go with a gun…but…his group they don't get along…he quarrelled with his fellows, and he got them caught."* PP

Overall, participants informed that market reduction at a rural level would be resolved when considering the socio-economic influences. These are, however, challenging to address and require lengthy strategies for poverty alleviation and rural development. Nonetheless, this study proposes, where possible, some short-term tactics to address these influences, especially given that the market may always exist due to culling and the market makes the thief, or in this case, the elephant ivory poacher.

The broader issues addressed by the participants concerned weak governance from enforcement and legal systems are at the core of the IWT (see also Salum et al., 2017; Ch.7). Therefore, it is little surprise that the participants' suggestions for mitigative strategies concern these issues. In response, the Tanzania government has recently dedicated resources to address these issues, including:

> *"…specialised wildlife prosecutors…special anti-poaching task force…DTP* [Director of Public Prosecutions]*…has the mandate of coordinating the*

investigation, apart from prosecution...to make sure that whenever, whatever, evidence they gather, meets, the legal criteria…the wildlife conservation act…was amended…one elephant is now valued at 16,000 USD…and the legal sentence is 20 years in prison. That is the minimum sentence. The maximum sentence is 30 years of imprisonment…." OSP

Whilst government responses address convictions of poachers, one RP voiced a need for more dialogue on animals' rights:

"The animals have rights, and the people have rights. But now, the laws surrounding an animal's rights do not." RP

The fundamental question is, *what if elephants had rights to self-defence and property along their migratory corridors?* There would be a need to critically reflect on how the legal system might best approach the penalisation of elephants for destroying farmers' property. Simultaneously, elephant personhood may change public opinion and potentially reduce crimes against elephants with the law reframing the legitimacy of elephants as beings (see Beirne & South, 2007; Choplin, 2021; Maher, 2017; NhRP, 2021; Nurse, 2016; Whitefort, 2019; Wyatt, 2013; Ch.2). Alternatively, there could be increased aggression towards elephants for being prioritised over rural populations.

This study does not make recommendations for elephant rights due to the speculative nature of this question. However, what is evident is that the killing and extraction of ivory run parallel to armed burglary and theft with legal implications in SGMs. Future efforts may build on this study's findings as harm and theft of personal property from individual non-human entities recognised by law.

12.1.3 Strategies Proposed for Urban SIMs

Propositions for anti-fencing– or ideas to that effect – were limited. Only one OSP suggested targeting the illegal profits from SIMs:

"…the most efficient way…is to go, go for their properties, their profits...so once you spoil the money…it's actually the best way of fighting any sort of organised or transnational crime." OSP

This suggestion overlaps with Sutton's (2010) recommendation to seize the fence's assets, and this study extends the idea to include monitoring mobile money transfers. However, this approach depends on enforcement training on financial investigations, including the purchases of assets (e.g., land and property), and on the fences' power and reputability to overrule enforcement through corrupted channels. The latter may also prevent the confiscation of illegally acquired finances and assets.

Implicit to the discussion here is the MRA's acknowledgement that more resources allow enforcement to provide adequate incentives to informants – and affiliated guardianship –

would undoubtedly increase the enforcement's ability to monitor and apprehend the operators of SIMs (Charles, 2009; Delpech, Borrion & Johnson, 2021; Hilborn et al., 2006). However, two PPs and one RP explain that limited funding currently hinders information gathering, with most informants approached after a crime is committed:

> *"…it should not only be that you follow up only after an incident takes place. We should be doing it even before…. To get more information is money. So, the government needs to ensure that the funds are there. Inside* [for patrol] *and out* [for intelligence gathering]*."* PP

This thesis supports the PP's claim for funds for intelligence before a crime is committed. Additionally, this study recommends training enforcement agents, who are often in direct communication with SIMs, on the ERASOR component of the MRA (Ch.4). This would allow tailored data collection on the changing *MO* that can then be systematically organised to allow patterning for market disruption planned on real-time updates of changing practices (Section 12.3).

12.1.4 Strategies Proposed on the Dynamics of SIMs

This sub-theme explores subtle and decolonised prevention responses through detailed data on interpersonal dynamics between operators in SIMs, including family influences – adultery and curses and assistance after release.

Chapters 2, 7 and 8, and Appendix 3 inform how adultery may be a factor during historical and contemporary poaching expeditions, especially in light of potential household instability due to incarceration. Such instability is documented in Western and East African literature, including divorce (Dehart, Shapiro & Clone, 2018; Massoglia & Warner, 2011; McKay et al., 2016) and the impact on employment options (Apel & Ramaker, 2018; Apel & Sweeten, 2010). This study proposes that such realities should be shared on local radio stations to provide insights into criminal activity's long-term consequences. Such approaches and a study of their outcomes are limited in an East African context, warranting further research on attitudinal shifts, if any, materialise.

This study also proposes awareness raising of said realities through peer-mentoring by rehabilitated or retired ex-poachers for communities surrounding PAs (Buck, 2018; Coulson & Nutbrown, 1992; Nixon, 2020; Warren et al., 2013). This proposition is based on the cultural aspects of Tanzania, where elders are respected, and their curses may be taken seriously:

> *"…even if the young man is yours, you tell him to leave this* [poaching]*…we use this voice of Africa, like us older men…you would say…I will curse you. Now us, of Africa, like this community of here, has the character and behaviour to be afraid of the curse of the old men. Because of that, he gets scared and leaves it."* PPP

The data suggests that older poachers would like to see the younger generation employed rather than poaching due to the risks of: arrest; conviction; altercation with peers; animal attacks; armed conflict; continued poverty despite poaching, and the overall toll on family and house stability:

> *"This was when…my parents were still alive. They sold the cows. The case finished. And later, they continued to follow me with many, many, small-small* [cases]*…. But after, now, mother was defeated…in total, overall, there is no merit in hunting. There isn't."* PPP

> *So now it reaches a point that you educate these peers of ours…that the animals might bring some deals, these that pay and benefits now…but the things that go on after that are just losses! It becomes like a curse."* PPP

It is vital to consider that some ex-poachers may not be willing to advise against poaching. Some mentors may encourage participation in SIMs, such as the 'prospective dead person' who supported his family through SIMs (Ch.7) while providing readily available access to the networks:

> *"They see as something impressive…. Now we call that like mampkisi or bampkisi [sic], meaning that people like that…you need to arrive earlier to stop them so that they don't enter into such brainwashes [sic]."* OSP

Such mentoring endeavours need to be piloted and monitored using a longer-term MRA to ensure that the outcome is not encouraged participation in SIMs or the opposite possibility of increased fear or an overreaction to crime.

Release from a prison sentence often leads to poverty and reoffending (Figure 16), bringing the discussion of rehabilitation and support after release to the forefront. Rehabilitation in Tanzania's 126 prisons is hindered by a lack of resources and focuses on vocational and occupational perspectives (Dissel, 2008; Mboje, 2013; Msoroka, Findsen & Barnes, 2018; Msamada, 2013). Additionally, there is a lack of record-keeping and data on recidivism (Christian, 2020; Msoroka, Findsen & Barnes, 2018).

One PPP best informs that what is needed for resettlement and a way of capturing recidivism is:

> *"A little bit of initial support to start back in the village…if they sponsor him, he will see…I am getting food…I am sitting with my kids, he won't be able to go back to the bush. He won't."* PPP

After release, some sources of monetary income, employment, or even resources for farming may reduce recidivism in SIMs. Instead of relying on lengthy prison reforms to include rehabilitation, this study offers resettlement should be outsourced to conservation organisations and NGOs with access to donor funds. These funds are often directed to educate local populations on conservation or implement community protection, which do

little to mitigate poaching, as found by this study. Therefore, resettlement after prison may yield more favourable outcomes. Although this suggestion may be expensive to implement, it may be less expensive than re-offending and incarceration (see also Maguire & Raynor, 2006).

It is, however, acknowledged that there is a debate to be had on the design of resettlement programmes – whilst the question of 'how can we involve the right ex-poachers?' remains unanswered. The answer for both lies in taking the first steps through pilot programmes and an initial collection of data on recidivism, possibly through a longer-term MRA (Figure 4).

12.1.5 Final Remarks on Theme 1

In closing, *Theme one* can be broadly summarised as poverty alleviation (through education and employment and small loans), reduced corruption, and curbed demand are at the forefront of the participants' recommendations to disrupt SIMs. However, some existing (arguably colloquial) strategies must be decolonised and locally tailored. These recommendations are catalogued in Table 50 and Table 51.

Additionally, the critical analysis here has been integral in assisting this study's propositions for piloted interventions to engender market disruption, which include: using crime studies (focused on Tanzania where possible) to share the impact of incarceration on families and ex-prisoners; exploration and implementation of peer-mentoring programmes; and rehabilitation of ex-poachers can be outsourced to conservation organisations.

12.2 Theme 2: Crime Prevention Strategies Proposed on Market Typologies

This theme considers the MRA's recommendations for the four market typologies pertaining to SIMs (Sutton,1998, 2010; Ch.4 & 13). The proposals consider the challenges of implementing mitigative tactics in urban and rural Tanzania with limited funding and resources. This theme also considers the mitigative strategies proposed for Hawking markets (despite no supporting data indicating that SIMs have hawkers) as they accommodate buyers who knowingly buy stolen goods.

12.2.1 *Commercial and Residential:* CCTV and Trap Cameras

> *"Well, the main thing is that the technology has grown widely. You can see that there are places with CCTV cameras. This is something that would help."* RP

CCTV is mentioned by several respondents for surveillance inside the PAs, as evidenced in the opening quote. However, the SCP and the MRA propose CCTV surveillance for commercial and residential fronts suspected of operating in SGMs (Ch.3 & 4). Accordingly, this study proposes using trap cameras in PAs and CCTV outside the bush. Concerning the latter,

surveillance of fences depends on the informants' guidance, which is limited in Tanzania due to limited funding. Therefore, this study relates back to training enforcement on ERASOR data gathering to inform camera and in-person surveillance (Section 12.1).

Concerning trap cameras, they are currently used for animal research and have previously unintendedly assisted in the arrest of poachers (Ch.2; Hossain et al., 2016; Piel et al., 2015):

> *"Eh, because there was research going…. So, when the poacher walked past at night with the gun, the poacher was caught by the cameras, it took a picture of him…."* RP

Trap cameras may be placed along rivers, elephant corridors and – notwithstanding the ethical issues of instigating surveillance on private land –on the boundaries of PAs and the surrounding farmland. There are, of course, multiple challenges with this approach, not least the need for supplementary data to pinpoint potential elephant and poaching hotspots and funds to install and train individuals to maintain and monitor the cameras.

The costs of CCTV and trap cameras are high as some areas may not support their implementation. The findings of this study do not lend themselves to recommending CCTV in rural environments. However, if trap cameras (and potentially drones) can be realised, they may induce diffusion of benefits as poachers become aware of increased risks and arrests. However, this diffusion may decrease over time. This study finds that corrupt rangers may share information concerning trap camera locations with poaching teams. Therefore, trap camera data and surveillance locations must be guarded and limited to entrusted enforcement members.

The implication here is that camera use is potentially undermined by endemic corruption. Therefore, although the use of trap cameras is suggested, it is advised with caution in consideration of data security (Table 52).

12.2.2 *Residential and Network:* Identify, Arrest and Expose

Sutton's (1998) research showed that although fewer residential fences are arrested when they are, there is increased fear among thieves and other fences. The same perception of risk-based strategy could apply to SIMs:

> *"…the president has entered into power, the way I hear in the ears, nowadays they are scared. It has become harder. If he is arrested, he loses what? [laughs] his life…. That is why they are scared-scared, ehhe."* PPP

A number of RPs also voice this suggestion (see also White, 2003, p.501; Lewis, 2009, p.237):

> *"...the mass media should play its part in broadcasting the poaching events along with the punishment…even if people have been bribed, they…expose that…. If other people see that, it will discourage them from poaching…."* RP

Family members' role is inherent to ivory theft (Chapter 8). It is not unrealistic to assume, therefore, that the family unit, once aware of the arrest dates and legal sentences of poaching, may play an integral role in discouraging the theft of ivory at a rural level (Ch.7, 8 & 13):

> *"I could have been dead already— [PPP: or locked up]…. But when* [rangers] *told my mum, my mum told me: 'I beg you, my son...' I said: 'Mama, eh, stop this. I will stop poaching.' And I left it, and* [rangers] *sponsored me to…find a job.'"* PPPs

This study proposes that the media ardently shares the self-victimisation cycle (Figure 17) to encourage non-participants of SIMs.

Media announcements of crime data concerning the number of arrests and convictions may discourage markets at the rural level while increasing the risks for urban fences and their protected façades of legitimate businesses and reputations in communities. For this tactic to be successful, radio broadcasts of the fences' arrests would also have to be incorporated. Although, this study proposes caution and consideration of the impact on the offender's family and acquaintances and does not encourage releasing personal information (Condry, 2007).

The challenges here are that this tactic relies on intelligence and arresting reputed shooters and fences. Given the possible routes of corruption that enable SIMs, such an approach would necessitate collaboration with local authorities, including letting agencies if the fences are in rented properties. This, in turn, may allow for more avenues of bribery to avoid arrest and exposure in the media.

12.2.3 *Commercial Sales:* Prevention Campaigns

The MRA proposition of prevention campaigns is aimed at buyers who unknowingly purchase USGs. This proposition has limitations for Tanzanian SIMs, although campaigns may be relevant when applied to locations of exchange and negotiations in urban and rural areas (including: hotels, lodges, guest houses, social bars, and coffee shops), as informed by this study. With signage deterring SIMs in these locations, buyers and sellers may perceive increased risks during transactions and negotiations. However, such interactions may be displaced to other, more private, locations that may be harder to police.

Currently, Tanzania has an established campaign against IWT at airports, although, as it stands, the impact of this campaign is unclear. Speculating, this campaign should be extended to rural areas to remind passers-by of the risks of participating in SIMs and the government's priority to address the IWT. However, campaigns designed on elephants as a heritage species or on anthropomorphism may not deter poaching as operators are able to neutralise their guilt to these factors (Ch.7):

"They know that it is a heritage of the country…. They know this…but again, [they will say] how shall we live without doing this work [poaching]*? We need the money."* RP

Nevertheless, a heritage campaign addressing a wider audience may encourage them to discourage others from participating in SIMs. This may be supported using local musicians and celebrities as advocates (Englert, 2008; Ch.4). However, as Sutton (2010) warns, campaigns should be approached with caution as they may be expensive and ineffective.

This study concludes that tailored campaigns in rural Tanzania warrant some exploration and piloting. There is some basis for the effectiveness of campaigns when learning from the outcomes and heavy reliance of rural political campaigns (signage, radio, incorporation of famous musicians).

12.2.4 *Network Sales and Hawking*: "Rule-Setting" Vs. Reporting Hotlines

"Rule-setting" schemes outline what is and is not acceptable behaviour to change habits through signage (Sutton, 1998). The challenge for SIMs is that it is already known to be illegal. Nonetheless, it was initially considered that rule-setting could be applied to poaching teams entering PAs. However, as PAs are not fenced, this option was omitted. This study does not support the notion of physical fencing as: (i) it limits animal movement; (ii) is expensive to implement; (iii) it is challenging to maintain and monitor due to animal destruction; and (iv) poachers may continue to poach with the non-detrimental added decision on how to cut the fencing.

The costs of implementing this tactic are high, and it is not easy to measure the impact of such approaches. Instead, crime reporting hotlines proposed for *Hawking* markets, even though *Hawking* markets do exist, or are rare, in contemporary Tanzanian SIMs, may be better suited with some tailored adjustments for rural Tanzania (Sutton, 1998, 2010).

Having spoken to informants and the informants' handlers, this study concludes that anonymity should underpin the information-sharing system, which may be accommodated by reporting hotlines. Given the increased availability of mobile networks, this may be possible and will bypass corrupt and potentially powerful intermediaries, such as village chiefs, to ensure anonymity. This tactic may also benefit from weak relations and altercations between operators who may inform on others (Appendix 3):

The villagers have become worse than those bosses…I give him the ivory, even before he has reached the road, [police] *catch him…. Do you think he will come back here again any other day? [all laugh]."* PPPs

Even more assurance could be guaranteed by outsourcing the system to a verified wildlife organisation, omitting doubt of repercussions, and preventing corrupt officials from accessing sensitive information.

12.2.5 Reverse Sting Operations

The data robustly evidences the use of sting operations to mitigate SIMs. However, such an approach often targets novice and opportunist poachers at a rural level rather than the more established chains and fences. Instead, this study recommends reverse sting operations where agents pose as the sellers, allowing the possible arrest of transporters or fences who can then inform on those higher in the chain (see also Langworthy, 1989; Sutton, 1998; Weiner, Besachuch & Stephens, 1981; Ch.4). However, reverse stings, are not immune to the challenges of addressing Tanzanian SIMs.

Firstly, it is equally possible that reverse sting operations may only target novice and opportunist buyers. Secondly, such an approach would mean that enforcement agents must be trusted with and have access to tusks, potentially resulting in another avenue of corruption and displacement of SIMs. Imposing stringent accountability through a record of named and vetted agents responsible for such operations may mitigate some risks. In turn, enforcement may perceive this as a form of promotion and provide a competitive driver for job motivation (Bloom et al., 2010; Ch.7) – an approach that necessitates careful planning (Banerjee et al., 2012; Holmstrom & Milgrom, 1991).

12.2.6 Final Remarks on Theme 2

In summary, CCTV surveillance is challenging, especially in a rural context. However, trap cameras – whilst still challenging - may be a viable alternative. Based on the research data, arrest exposure is recommended to disrupt reputed fences and ensure accountability through media pressure. Similarly, announcing poachers' and fences’ convictions and arrest rates will increase the perceived risks of participating in SIMs while potentially encouraging kinship influence to deter participation in SIMs.

That said, a degree of caution should be exercised here on all accounts, as campaigns are long-term strategies that are often expensive and ineffective. Rule-setting schemes face similar challenges and cannot be incorporated in rural areas for behavioural architecture. Instead, crime reporting hotlines and reverse sting operations may disrupt Tanzanian SIMs.

As Sutton (1998) states, tactics depend heavily on the available resources. Hence, it is not necessary to forcefully accommodate all strategies. In conclusion, the overlaps between SGMs and SIMs allow for shared market prevention planning with the added considerations tailored for Tanzanian SIMs, as informed by this study.

12.3 Theme 3: Crime Prevention Strategies Proposed for the Chain of Transactions

This section explores the data on the chain of transactions (Ch.9 & 10) to find any avenues that allow the disruption of Tanzanian SIMs with the following propositions:

- Longer-Term MRA for Multi-Layered Seasonal Variation Patterning Longer-Term MRA for the Distributors of SIMs
- Longer-Term MRA for the Distributors of SIMs
- Guns and Ivory Detection – Ground Penetrating Radar (GPR)
- Motorcycle Taxis
- Vehicle Modifications

12.3.1 Longer-Term MRA for Multi-Layered Seasonal Variation Patterning

Ideally, SCP strategies would be used on entry (the journey to crime) and exit (the journey after the crime), such as adding barricades or surveillance at known points (Brantingham & Brantingham, 1981; see also van Doormaal, Lemieux & Ruiter, 2018). However, this study found no defined entry and exit points (Ch.8 & 9). Instead, this study uncovers that the poaching teams engage in significant planning before entering PAs with funnelled and rational decisions to limit the efforts involved in poaching ivory (Ch.8). These decisions depend on seasonal variations, movement, and behaviour (Ch.9).

The data presented by this study are foundational and necessitate a longer-term MRA to monitor the changes in *MO* influenced by seasonal variations (Ch.9). However, this study presents the following data checklist to be collected, plotted, and mapped together to allow tailored patrols and investigations:

- *The seasonal movement of elephants:* determined by seasonal water sources and vegetation (Beale et al.,2018; Chamaillé-Jammes, Valeix & Fritz, 2007; Ndaimani et al., 2016).
- *Seasonal flooding zones:* determined by rangers' experiences, including their knowledge of where the poaching units are most likely to operate during floods (Beale et al.,2018).
- *Mobile phone network hotspots:* determined by rangers who live in the PAs with a focus on areas near seasonal water sources and park boundaries where food supplies or buyers may meet poaching units (Ch.9). Alternatively, mobile network companies can provide signal testing equipment to map locations (Doormaal Lemieux & Ruiter, 2018).
- *Seasonal access to bridges, culverts and known caves:* determined from a PA's planning documents, especially near water sources, as guns and ivory may be stored there, or they may be used for poaching unit camps (Ch.9 & Appendix 3).
- *Surrounding villages and accessibility dependent on seasonal variations:* mapped to understand entry or exit routes.
- *Known exit routes:* as experienced by rangers. Poachers may frequent these routes when they perceive the enforcement no longer monitors them (Critchlow et al., 2016) (Ch.9).

- *Existing ranger posts, regular patrol areas and research centres:* as poaching units will avoid these (Beale et al., 2018; Critchlow et al., 2016; Piel et al., 2015)
- *Changes in poaching teams' operating times due to seasonal variation*: as experienced by rangers and as disclosed through offender interviews. This will tailor ranger patrol schedules to the correct times when the units are most active instead of the currently known schedules by poachers.
- If in regions such as Ruaha, then the mapping of large landmark baobab trees that can be used to store tusks and guns or that can be used as possible hiding spots may be helpful. Understandably, this may be resource-intensive, given the number of trees.

Although some recommendations have been made for Tanzania or other African countries, they are often presented independently. This study stresses the need to collectively map these data primarily for RAT and CPT and to ensure that enforcement efforts and resources are directed to the most needed areas. So, for instance, if roads are unpassable, seasonal makeshift ranger posts can be implemented in problem areas. Additionally, patrol teams that arrive after a theft incident can be guided by the data to potential gun and ivory storage locations or hiding spots in their vicinity.

The multi-layered seasonal mapping requires a longer-term MRA and enforcement training on ERASOR to ensure the data are constantly updated, especially as poaching teams change their *MO* in response to prevention tactics.

It is also acknowledged that a change in enforcement schedule may be challenging to implement due to the limited resources and seasonal challenges, coupled with acknowledging the possibility of an 'implementation gap' between policy and practice.

12.3.2 Longer-Term MRA for the Distributors of SIMs

This study proposes a longer-term MRA to allow SCP of distributors (Ch.11). Once a connection between businesses and SIMs is established, SCP techniques, including CCTV or in-person surveillance teams (Section 12.2.1), random searches and a legal requirement for financial transparency can be explored. Consequently, this study proposes another checklist for systematic data collection and analysis, including:

- The disguise of stolen ivory.
- The exact placement of illegal ivory on various cargo.
- The company that the vehicle carrying the ivory belongs to.
- If carried on a person, then their occupation and travel route.
- Location of where the cargo departed from and where it was destined.

This may ease the effort of future stops and searches on roads, ports or airports while allowing insights into which businesses should be the primary focus for enforcement.

12.3.3 Guns and Ivory Detection – Ground Penetrating Radar (GPR)

"We should also give out metal detectors so that they can sense." PP

Near-surface GPR techniques (Daniels, 2007; DeGroot, 1997; Jol, 2013; Skolnik, 1980, 2008) provide a non-invasive and potentially cost-effective method to detect guns and *possibly* ivory stored in the bush (Ch.9). In the long-term development of the technology, it may also be possible to conduct such searches using drones or other unmanned aerial systems (Anderson & Gaston, 2013; Koh & Wich, 2012).

This study details the storage location of guns inside and outside the bush (Ch. 9 & Appendix 3). Coupled with the evidence for GPR detection of buried firearms (Dionne, 2009; Hansen & Pringle, 2013; Pettinelli et al., 2014; Solla et al., 2012) over a large area (Rezos et al., 2010), this may be used to disrupt SIMs. On the other hand, concerning buried ivory, there are some complications.

Current experiments have been limited to animal bones (Schneider & Tsoflias, 2016). Concerning the detection of ivory, much may depend on how the tusks are buried, either sideways or vertically (a question for a longer-term MRA), coupled with the following challenges:

- Soil is naturally disturbed by animals (Schneider & Tsoflias, 2016).
- Financial liquidity for the training of agents to use, record, identify and maintain the project, with potentially low returns of finding either weapons or ivory.
- It remains unclear if buried tusks can be identified in a region with many animal remains.
- Possible complications and debates concerning national storage of located tusks. The value placed on recovering the ivory, which may be illegal or legally sold, with implications on future SIMs.
- Locating buried tusks could lead to increased crime akin to permafrost excavations of buried mammoth ivory, especially if the locations are leaked (Begum, 2021; Ferris, 2020).

Despite limitations, unknown contingencies, and outcomes, GPR coupled with this study's data to narrow down search areas has the potential to detect guns and *possibly* ivory both in and out of the PAs. This further highlights the need for longer-term MRA and ERASOR training for data gathering, akin to this study focusing on the minutiae of the chain of tractions, especially in light of technological advances.

The considerations for the propositions pertaining to areas outside the PAs are two-fold: legal concerns of searching private land and, secondly, how the compensation is calculated for ruined crops during investigations. If this is not resolved, it will add to the existing lack of compensation for HEC while increasing the distrust between civilians and conservation agents. The policy must be discussed for these two considerations before implementation.

Nonetheless, GPR has been proposed for bushmeat poaching through snare detection (Borrion et al., 2019), and should this approach be successful, it may potentially disrupt the by-catch or accidental poaching of elephants (Ch.9). However, of note on displacement, is that poaching units may simply revert to historical hunting practices upon confiscation of their stored firearms (Ch.2) or find alternative storage of the contraband. This necessitates constant monitoring so that tactics are systematically updated and tailored.

12.3.4 Motorcycle Taxi

Sutton's (1998) findings on taxis and this study's findings on motorbike taxis (*boda-boda)* emphasise the importance of private hire public transport in the operationalisation of illicit markets. Not all the motorcycles used in SIMs are taxi-based, but they could also be privately owned (*piki-piki*).

Before suggesting prevention tactics based on motorcycles, it is essential to consider their socio-economic in a rural and urban context as they provide alternative income as outlined in existing literature (Bishop & Amon, 2015; Bishop et al., 2018; Ehebrecht, Heinrichs & Lenz, 2018; Nyakyi, Kuznetsov & Nkansah-Gyekye, 2014; O'Grady, 2015; Porter et al., 2013; Starkey, 2016). Therefore, careful consideration must be taken as the consequences could detrimentally undo the socio-economic enhancements, leading to potential riots encouraged by associations such as *Chama cha Waendesha Piki-piki Wilaya ya Ilala* (CHAWAPILA) and *Umoja wa Waendesha Piki-piki Mkoa wa Mwanza* (UWP).

A more extreme proposition that is less likely to be accepted is the proposal to limit the use and access of motorbikes near the PA's boundaries. Turning to existing studies, authorities in Lagos, Nigeria, restricted commercial motorcycles to the back streets of the metropolis. This was received with mixed feelings but resulted in lower accident rates and increased security improvements (Dina et al., 2015). A similar ban was proposed in Addis Ababa, Ethiopia, to prevent motorcyclists' rampant theft and mugging, but the outcomes remain unclear (Africanews, 2019; Ncube, 2019). However, specific to Tanzania, implementing this proposition may negatively impact populations in rural poverty who are already frustrated with conservation practices.

Alternatively, less punitive approaches include:

- GPS tracking near the PAs.
- A policy that enforces drivers to undergo exams proving their awareness of the boundaries and the prohibition of driving in PAs. This will eliminate the drivers' reliance on claims of unknowingly being in the area due to the lack of physical fencing and make them liable for the consequences of knowingly committing an offence.

Another proposition includes the inclusion of motorbike associations in crime prevention of SIMs through mutually beneficial partnerships with conservation organisations. This could apply to other East African countries facing similar SIMs and motorbike challenges if

successful in Tanzania. Additionally, the collaboration between these two unlikely stakeholders could provide benefits such as youth employment (Ismail, 2016) with broader positive socio-economic strokes for preventing SIMs.

12.3.5 Vehicle Modifications

Vehicles may be modified to disguise and transport illegal ivory (Ch.9 & 10). Although these modifications are not illegal in the strictest sense, they provide an avenue for prevention strategies (see Abu Bakar, Isa & Osman, 2017; Clar, 2003; Vingilis & Smart, 2009). This study calls for a collaborative partnership between conservation efforts and the Tanzanian transport division to file for a policy dialogue making modifying vehicles for concealed storage illegal.

Future MRA could focus on the maker of modification during data gathering to inform which workshop should be placed under surveillance for possible leads to the fences. Moreover, garages may be invited to participate in prevention campaigns with scope for rule-setting schemes (Section 12.2). However, in some cases, established fences may instruct modifications in private garages, making it challenging to police and the ineffective outcomes that campaigns are prone to should be considered before implementation. This is in addition to the unavoidable change in *MO* when such tactics are implemented.

12.3.6 Road Construction and Labourer Camps

As voiced in Chapter 10, labourer camps close to PAs may result in SIMs, with ivory taken directly from poacher to buyer (who may or may not be an intermediary).

There is some value in promoting policy dialogue on transparency and collaboration between the government and foreign companies to mitigate illegal wildlife activity in the camps (Cottle, 2011; Lokanathan, 2020). For instance: monitoring and allowing local enforcement to search camps upon evidence-based suspicion; prohibiting the use of drones in these locations (Alden & Harvey, 2021, p.21); and rule-setting schemes to discourage crimes against wildlife. However, this may also open more avenues for corruption of local enforcement by the company employees, and both parties may agree on sharing the costs of such propositions.

Although this may be challenging to adopt, past experiences with that transparency initiative in Tanzania’s extractive industry have had beneficial outcomes (Poncian & Kigodi, 2017) that could be extended to SIMs.

12.4.7 Final Remarks on Theme 3

Findings from this study indicate that crime prevention techniques can be applied to poacher teams’ dependence on seasonal variation; the teams' movement in accordance with ranger post locations and patrol time; the storage of ivory and guns in the bush and outside; and the use of motorcycles and modified vehicles. In addition, the theme addressed the need for

transparency and collaboration between foreign companies and local government when labourer camps are established close to PAs.

Across all the recommendations, it is evident that there is a need for a longer-term MRA to address the possibly inevitable crime displacement and change in *MO*. This is essential for Tanzania, which already faces challenges in limited resources and funds and where a longer MRA may assist in directing the funds and efforts to ensure potential positive outcomes. However, there is a need to consider the options for crime prevention before harm is caused to the elephant. Consequently, the following section explores This study's data on the operations of SIMs before the chain of transactions.

12.4 Theme 4: Crime Prevention Strategies Proposed Before the Chain of Transactions

Theme four explores market disruption tactics based on the data analysis presented in Chapters 7 & 8 with the following propositions:

- The MRA to Illicit Firearms Markets and Other Illicit Supplies Needed for SIMs
- Prevention of Poacher Team Recruitment
- Dialogue Platforms for Enforcement Agents
- Long-term MRA, Seasonal Variations and HEC

12.4.1 The MRA for Illicit Firearms Markets and Other Illicit Supplies Needed for SIMs

The data across all chapters and Appendix 3 presents a brief understanding of illicit markets of firearms and ammunition used in SIMs. Therefore, this study presents the following propositions:

- Create a national firearms serial number database.
- Collaboration with neighbouring countries to create a database on illegal firearms disguise and transport methods.
- Trace and record small arms dealers, including those in neighbouring countries.
- Identify and monitor known fences that sponsor firearms for SIMs. This will require substantial evidence to ensure the fence's arrest.
- Implement a longer-term MRA to track the supply pipeline and stay updated on changes.
- Use GPR technology and the data from this study to detect stored weapons, assist forensics evidence and secure legal proceedings.
- Rule-setting schemes prohibiting firearms.
- A database mapping known *rat roads* (Ch.10) to search for stored weapons.
- Conservation crime prevention campaigns run by legal firearms distributors.
- Track enforcement weapons (possibly using GPS) to prevent gun rental for SIMs.

As informed by this study, the above is a foundational framework for disrupting illicit firearms markets for a domino disruption of SIMs.

In conjunction, this study proposes the disruption of markets that supply animal-based supplies for poaching to create yet another domino disruption of SIMs (Ch.8). For instance, when team members cannot acquire oil or medicine, they believe to be integral to the successful theft of ivory, they may decide to cancel or delay their illicit expedition. Monitoring the two markets through the MRA could also allow conservation collaboration across different non-human species (Hilonga et al., 2019). However, this approach necessitates regional experts and extensive research on the various practices (Nichols-Belo, 2018), including which herbalists or witchdoctors can provide these supplies.

Once the herbalist has been identified, enforcement personnel could rely on the suppliers as informants in exchange for monetary remittance. However, such an approach would have to be monitored as there is potential for crime displacement.

12.4.2 Prevention of Poacher Team Recruitment

As Meneghini et al. (2021) advise, all specific factors that lead to recruitment must be differentiated to facilitate prevention policies, as done so by this study (Ch.8). Therefore, relying on the data that recruitment takes place through monetary enticement or 'money flaunting' in social locations (bars and coffee houses), this study proposes the presentation of a counter-narrative of the options.

It is recommended that communal areas (such as village halls) present the counter-narratives of reformed poachers who may have secured permanent employment. This may serve as a reminder that although the recruiter offers access to SIMs, more professional and legitimate options are available and possible (albeit limited and challenging). Such an approach may shift the learnt definitions of differential association and social learning (Calderoni et al., 2020) from normalising poaching to normalising the possibility of formal employment.

This approach should be linked to the peer-mentoring programme (Section 12.1) alongside the considerations for education and employment (Theme 1). The former can also encourage the mentors to raise awareness of the ill-treatment by intermediaries and fences, despite their initial concern and assistance during recruitment. Measuring success should consider that determinable impact may take some time.

12.4.3 Dialogue Platforms for Enforcement Agents

This study calls for change in the perception of rangers and police from 'boots on the ground' to participators in open dialogue on crime prevention for SIMs and training on ERASOR, as aforementioned. As evidenced by this study, rangers with extensive experience with elephant poachers have a plethora of information to inform mitigative interventions tailored to Tanzanian SIMs.

Moreover, a platform would allow the different enforcement agencies divided experiences of the chain of transactions (with PPs located outside the PAs and the rangers on the inside) to be combined and provide a complete picture of SIMs. The following quote is instrumental in explaining this:

> *"…regarding this, I'm not too sure as I am not very well informed…we are mainly used inside, and our colleagues are the ones that are used outside…. Once we catch the poachers and hand them to the others, that's it. We are no longer involved."* RP

Access to an information-sharing platform could give rangers prestige in their roles as their voices and experiences are recognised and acknowledged (Mariki, Svarstad & Benjaminsen, 2015). Once such a platform is in place, it may be extended regionally to accommodate the enforcement in neighbouring countries to address the regional spillover of SIMs.

A note of caution must be taken to monitor potential corrupt channels to avoid leaks of policy dialogue to poaching teams. Vetting may be conducted similarly to this study, where ranger interviews provided insight into their knowledge, motivation, and commitment to conservation.

12.4.4 Seasonal Variations and HEC

For generations, conflict over crop-raiding elephants has persisted and is yet to benefit from a sustainable solution for both victim and aggressor (Ch.2). Many efforts have concentrated on what can be done to stop the elephants from harming the (in most cases) single revenue stream of farmers (Ch.2 & 7). However, this study calls for a shift to what can be done to overcome, rather than stop, this generationally ingrained behaviour in elephants (Ch.2).

There may be some value in the role of seasonal variation in minimising HEC and in addressing the underlying drivers for SIMs (Ch.7). Snyder et al. (2019) found that crop-raiding occurs along the long perimeters where PAs are adjacent to villages, coinciding with crop maturity and harvest periods. The Latter may be due to generations of symbiotic human-elephant evolution and hand-in-hand development of agricultural practices (Ch.2).

A more detailed database of crop-raiding records, combined with the seasonal movement for elephants and harvest periods, may allow rangers to be directed to areas most likely to experience conflict during specific months. This may have long-term disruption outcomes for SIMs as the potential motivators and guilt neutralisers are acknowledged (Ch.7). In addition, this approach may change the local populations' perception of the PAs management authorities that are currently disliked:

> *"The thing that they say is neighbourliness; people do not like it when they say that. They say, what neighbourliness? When we take a complaint, you don't even help us...."* PPP

12.4.5 Final Remarks on Theme 4

Theme four suggests a longer-term MRA for firearms and ammunition, including databases to track and disrupt the markets with beneficial domino disruptions to SIMs. This also includes the proposition to monitor other traditional supplies needed for ivory poaching. It proposes campaign-style action through positive-counter narratives to prevent recruitment into SIMs and open dialogue to allow enforcement collaboration, information sharing, and brainstorming on crime prevention techniques. Finally, *Theme four* shares the possible management of HEC through monitoring and preparing for crop-raiding through data mapping. Additionally, this study suggests the implementation of farming cooperatives in the region alongside other decolonised approaches to conservation discussed in the next theme.

12.5 Theme 5: Decolonising Conservation and Impact Investment

The suggestions shared here are borrowed from Temboiworry, a business proposal formulated through this study (Appendix 5) and my firsthand experiences with smallholder cotton farmers (Mutabazi, Wiggins & Mdoe, 2013; Ngowi, 2017) in Tanzania, and impact investment (GIIN, 2021; McCallum & Viver, 2021) (Appendix 5). This approach considers small loans, employment, and sharing resources during HEC. The general notion of this proposition is that legal income generation and an introduction of a legitimate market can be used to disrupt SIMs.

12.5.1 Income Generation: Farming and Tourist Lodges

This study proposes farming cooperatives in areas surrounding the PAs to ensure joint revenue streams that may overcome the lack of compensation for HEC. However, this proposition must be coupled with higher crop production through assisted agricultural practices (Johannesen, 2005) to ensure a revenue stream that reciprocates benefits for conservation. Additionally, this proposition necessitates access to a market:

> *"…but we still don't have a market…his tomatoes…have rotted in the field!... Why don't they just set up a factory…if we farm, we would know right away…I'm taking it to the factory...they give you the money…you have the means to budget…for the schools…the food...."* PPP

This study suggests that tourist lodgings and ranger posts should provide the market with quotas to ensure a certain percentage of groceries are attained from surrounding populations. Purchase from rangers safeguards some revenue when the tourism season ends.

Although one PPP informs that the relations between farmers and lodges are underdeveloped:

> *"…they know we are farming here…but they could still go and buy from Arusha…. While the…residence of the Serengeti…are here…."* PPP

Therefore, realigning perceptions to one of inclusion and *neighbourliness* may be a small step in undoing the robustly embedded distrust and resentment. Figure 31**:** Impact investing through Temboiworry – A look at poaching and agriculture in Tanzania, taken from Temboiworry, presents a general understanding of this business initiative and collaborative efforts (Appendix 5).

As this relationship develops, other revenue streams may be introduced, such as a meet-and-greet with ex-poachers or classes held in villages alongside forgivable loans managed through the intermediary Temboiworry, from donor-to-projects for income generation for released poachers (IRIS FMP Global, 2021; Section 12.1). The idea of a cooperative is still in the early piloting phase by Asanja Africa.

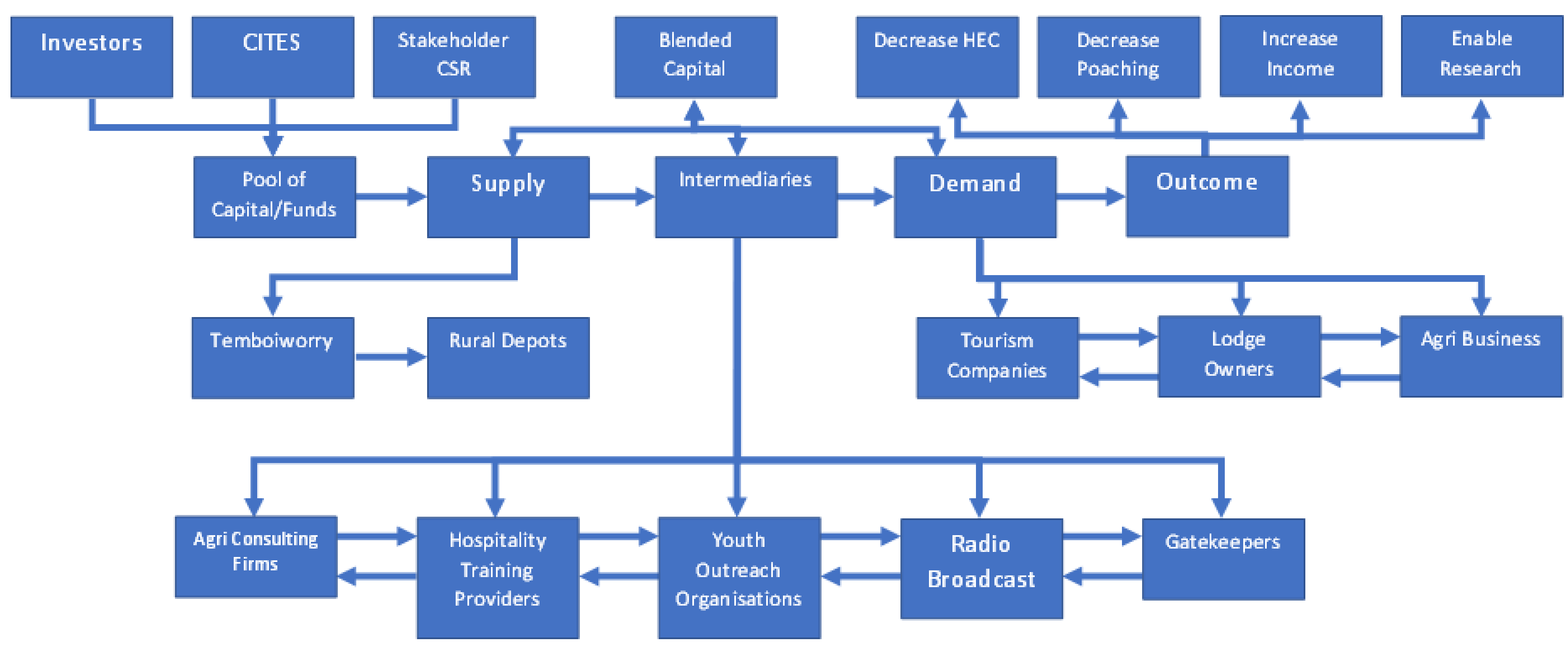

Figure 31: *Impact investing* through *Temboiworry – A look at poaching and agriculture in Tanzania*

12.5.2 Community Guardianship and Communal Reward for Elephant Acceptance

> *"But using strength does not work. You have to use socialising and community to overcome this."* RP

This sub-theme builds on income generation through the presence of elephants by a counter proposition to existing community protection using an interdisciplinary approach of critical and conservation criminology and political ecology (Massé et al., 2020).

This study proposes the employment of urban Tanzanians interested in conservation as community guardians in rural locations to provide direct feedback on the impact and perceptions of the tactics mentioned in this chapter. Increased urban and rural youth interactions may allow learned definitions for legitimate professional endeavours (Barbarani, 2016).

Secondly, this study suggests the implementation of an accolade for *Elephant Village of the year* sponsored by impact investment donors, in line with urban honours for the cleanest city. Villages most accommodating to elephants can be recognised to encourage tourism to that area and be gifted with agricultural benefits such as sponsored fertilisers or tractors. Some initial and broad-stroke ideas from Temboiworry include:

1. Education systems for adults and children on decolonised conservation.
2. Implementation of elephant-conflict deterring initiatives (use of chillies (Le Bel, La Grange & Drouet, 2015; Ngama et al., 2018; Pozo, 2017); chilli-tobacco rope (Chelliah et al., 2010); hedgerows (Lemieux & Clarke, 2009, p.466); beehives (Ngama et al., 2016).
3. Monitoring and limiting the presence of illegal firearms in the village.
4. Involving motorbike associations to ensure that they are not participating in SIMs.

Such an initiative could overcome disputes and ineffectual cohabitation of PAs, and benefits may include:

1. Information sharing on SIMs.
2. Attitudinal change towards elephants.
3. Scope to pilot future decolonised community wildlife management with assistance from social enterprises (Child, 1993).
4. Scope to gather long-term best-worst scaling data (Davis et al., 2021; Tyner & Boyer, 2019) or full MRA interviews.

Some negative repercussions are possible, as one village may undermine the efforts of another. Consequently, careful considerations are necessitated and must be supported by interviews to understand the perception of such an intervention.

12.6 A Note on Displacement and Summarisation of Crime Prevention Tactics for SIMs

> *"…the finer particulars of an offence should be studied to understand how crime patterns change and shift."* (Stickle & Felson, 2020)

The question on displacement (Ch.3) is discussed throughout this chapter and is presented in table format (Table 49 to Table 54) aligned to the summarisation of the responses detailed in this chapter. It is essential to note that the MRA caters for crime displacement issues and provides logical, clear instructions that all crackdowns must be consolidated to reduce underlying factors enabling SIMs (Sutton, 1998, pp.39-41). Finally, exit strategies incorporating all stakeholders must be detailed through record-keeping of successes, failures, and recommendations for future crime reduction should any of these initiatives be implemented (Sutton, 1998).

Table 49: *General considerations for an effective strategy for SIMs*

Response No.	**Source**	**Response**	**How it works**	**Works best if…**	**Considerations**
1	**	Adopting a comprehensive approach from SGMs for SIMs	It reduces supply-and-demand	… it is based on known effective practices	Predicting the outcome of Western strategies used in rural non-Western environments is challenging. A MRA must be conducted before, during and after adopting tactics used for SGMs.
2	*	Improving investigations of SIMs	It increases the risks of apprehension	…detectives and officers are open to changing conventional investigative practices	It requires additional resources and vetting to determine incorruptible officers
3	*	National multiagency partnerships	It improves communication and coordination among responders	…working groups coordinate activity and maintain focus, and written protocols establish clear responsibilities and authority	Partner agencies can have different priorities and goals; large partnerships can be challenging to manage and sustain

Source: *Sutton (2010) tailored to SIMs ** This study

Table 50: *Regional and international considerations for an effective strategy for SIMs*

Response No.	Source	Response	How it works	Works best if…	Considerations
4	**	Regional multiagency partnerships	It improves joint enforcement efforts and information sharing to address the regional spill-over of SIMs	…each country conducts an MRA to determine the overlaps and discrepancies between national SIMs and shares information, responsibilities, and resources	Countries can have differing priorities; joint enforcement can be challenging to maintain and sustain; countries may not be willing to assist other countries
5	**	Global or regional ban on ivory sales with an MRA	It prevents the camouflage of legal sales and monitors market displacement	… it is adopted strictly and accompanied by monitoring through a long-term MRA	Countries have differing priorities and resources to police and maintain a global ban that can render this approach ineffective

Source: *Sutton (2010) tailored to SIMs ** This study

Table 51: *Socio-economic market reduction approaches for consideration for SIMs*

Response No.	**Source**	**Response**	**How it works**	**Works best if…**	**Considerations**
6	**	Formal education supported by training and opportunities for employment	Income generation to prevent participation in SIMs	…employment in tourism; donor funds contribute to training	Stakeholders in the region need to be willing to fund and employ; employment and education need to be addressed together
7	**	Decolonised conservation to realities of repercussions	Tailoring conservation education to local understanding and practices rather than empathy, including awareness of self-victimisation	…informed by a regional expert who can assist in shaping the module	Time and resource-consuming; changing the perception away from elephants as the enemy is challenging

Source: *Sutton (2010) tailored to SIMs ** This study

Table 52: Specific responses to reduce SIMs

Response No.	Source	Response	How it works	Works best if…	Considerations
8	*	Reverse-sting operations	It targets the buyers	…enforcement conducts them regularly but at unpredictable intervals and focuses on the prolific buyers and exporters of SIMs	Agents must be vetted to handle tusks accompanied by strict protocols; potential for displacement of corruption
9	*	Encouraging informants to report on other poachers and fences	It increases the risk of apprehension	…enforcement has funds to provide adequate incentives to informants; informants feel safe and anonymised; efforts are directed to information gathering prior to a crime rather than after	Informants may face backlash from village colleagues, especially if encouraged by village leaders involved in SIMs
10	**	MRA and ERASOR training for enforcement	It ensures updated data to allow real-time tailored strategies and management of limited resources	… systematically collected offender interviews at all opportunities; organised information to detect offending patterns	Requires: resources and funds for training; dedicated administrative team to manage the data
11	*	Closing down fencing operations	It increases the efforts to sell or store illegal tusks across the chain	…enforcement shut down a sufficient number of–or sufficiently large–operations	Requires careful planning and resource-intensive investigations; dependent on informants, surveillance (in-person/CCTV) and substantial evidence-gathering
12	**	Trap cameras and drones in the bush	May identify poachers and provide robust evidence for legal proceedings	…training is provided for the implementation, monitoring, and maintenance of cameras; data are secured from tampering	Requires careful planning for camera placement; data and camera locations must be secured and trusted by vetted agents only

Response No.	Source	Response	How it works	Works best if…	Considerations
13	*	Seizing assets and profits earned from SIMs	It limits the rewards of trading in SIMs and increases the risks through financial investigations	…corruption is limited, preventing access to seized assets; multiple agencies collaborate (banks; mobile network providers); sufficient resources allow evidence gathering for prosecution of powerful fences	Some asset-forfeiture laws are difficult to enforce; enforcement requires training on financial investigations; corrupt channels may prevent confiscation of assets and profits
14	*	Tailored publicity campaigns and potentially *rule-setting* schemes	It promotes a sense of protection; possibly perceptions of heritage species; advertises the risks of operating in SIMs	…they are accompanied with nudge theory; locally informed; carefully designed; piloted; and monitored by a longer-term MRA	Ineffective campaigns are costly and a waste of resources; campaigns may backfire, leading to a displacement or encouragement of SIMs
15	*	Identify-arrest-expose established fences	It exposes established fences and legitimate businesses while impacting reputations	…hard evidence is collected, and fences are unable to revoke their convictions or rely on corrupt channels to avoid arrest	There may be repercussions across the chain of transactions, with possible crime displacement that must be monitored through an MRA
16	*	Media announcements of conviction rates	It increases the perception of risk; may discourage participation in SIMs	…if this information is shared on media outlets accessible to rural populations	If the *MO* is shared, operators may change their ways, necessitating a continuous MRA to update enforcement responses
17	*	Crime reporting avenues, including hotlines	It allows anonymity to limit repercussions for sharing information	…outsourced to vetted third parties or trusted enforcement team	Anonymisation may be challenging; corrupt individuals may illegally share information, resulting in repercussions

Source: *Sutton (2010) tailored to SIMs ** This study

Table 53: *Specific responses informed by the data*

Response No.	Source	Response	How it works	Works best if…	Considerations
18	**	Translating and sharing studies committing crime and stability/ future employment	It may discourage participation in SIMs	…the information is based on studies conducted in Tanzania, and results are shared on local radio	Increased fear of crime could lead to more crime; if the particulars of the *MO* are shared, it could be adopted by other offenders
19	**	Peer-mentoring programmes inform that the benefits may not outweigh the risks of SIMs	It may discourage participation in SIMs	…ex-poachers are trained to interact with mentees; they are paid for their services	Some may be influenced by the mentor's experiences, leading to increased participation in SIMs
20	**	Assistance after release from prison	It prevents re-offending, which is encouraged by access to quick money	…different stakeholders collaborate to offer employment or small loans to allow initial stability after release	This strategy is costly and may be ineffective as some motivations may lead the individual to return to SIMs
21	**	MRA for supplies used in SIMs	It uses the MRA to disrupt other illicit markets that support SIMs for a domino disruption of SIMs	…local experts are part of the process; herbalists/witchdoctors are known and possibly recruited as informants	The MRA will be time and resource-intensive; medicine practitioners may be unwilling to collaborate with enforcement
22	**	Transparency, collaboration, and rule-setting schemes for foreign companies	It allows enforcement investigations in labourer camps; it may deter participation in SIMs	…companies are willing to collaborate and fund and adopt government mandates	Companies may be unwilling to collaborate or negate costs; potential for new avenues of corruption

Response No.	Source	Response	How it works	Works best if…	Considerations
23	**	Longer-term MRA encompassing seasonal variations	Maps multiple data factors to support search and arrest; directs resources to where and when they are most needed; identifies fencing operations	…enforcement is trained on ERASOR, including considerations for SIMs as advised by this study; statistician maps the data; mapping is extended to HEC	Data may not always be logged or collected; inevitable displacement of crime, but an ongoing MRA will accommodate changes
24	**	Cost-benefit analysis of ranger posts	Informs if ranger post placements are deterring poaching and allow access to hard-to-reach zones during seasonal variations	…combined with competition drivers and incentives between the different ranger posts	The debate against increased militarisation has to be considered; competitive incentives may have unintended outcomes
25	**	Ground-penetrating radar (GPR), metal detectors and sniffer dogs	It detects stashed guns and *potentially* ivory	…a longer-term MRA informs search areas to reduce the vastness of searches	For ivory- careful consideration of implications on = national storage and security of stockpiles; leaked data on buried guns and ivory could displace crime
26	**	*Boda boda* ban, rule setting scheme and associations	It prevents drivers from knowingly participating in SIMs	…the extreme ban on motorbikes near PAs is combined with the softer rule-setting signage, driver exams, and GPS tracking	Warrants careful consideration as motorcycles provide valuable socio-economic benefits; bans could lead to riots
27	**	Vehicle modification garages and back-street workshops	Monitoring garages/workshops suspected of modifying vehicles for SIIMs	…there is access to informants in garages/workshops; a longer-term MRA monitors changes in *MO*	Fences could change their *MO;* modifications may be conducted in private garages, necessitating legal considerations

Response No.	Source	Response	How it works	Works best if…	Considerations
28	**	The MRA for guns and bullets	Monitors the supply of illegal firearms used in SIMs; traces the pipeline back to fences	…accompanied by a longer-term MRA on guns and ammunition used in SIM; provides substantial evidence against a fence	Extensive use of funds and resources; needs inter-agency collaboration with legal firearms suppliers
19	**	Open platforms and policy dialogue for enforcement	Enforcement agencies can collaborate, share information, and discuss crime prevention tactics for SIMs	…extended to neighbouring countries to create regional platforms	Possibility of information leakage to fences or poaching teams by corrupt officials, rendering implemented responses ineffective and costly
30	**	Decolonising conservation and impact investment	Explores financial instruments; generates income streams using existing infrastructure	…community guardians may be employed to understand the perceptions towards responses; guardians may influence rural youth on profitable careers in conservation	Could be subjected to foul play and corruption, especially in high-stakes bids.

Source: *Sutton (2010) tailored to SIMs ** This study

Table 54: Responses with limited effectiveness for SIMs

Source	Response	How it works	Works best if…	Considerations
**	Community wildlife management			Individuals may be unwilling to collaborate with enforcement, and those entrusted with responsibilities may be involved in SIMs
*	Disposal of recovered tusks			It is unlikely to reduce poaching and trading of ivory; it may be resource-intensive; it needs increased transparency and security of national stocks of tusks; there is a need to consider a long-term plan for stockpiled ivory
*	Traditional sting operations			Could lead to increased demand for ivory; may be limited to novice poachers or teams; does not lead to the arrest of fences
*	Property-marking schemes			Ivory is challenging to mark; resource-intensive to identify; consumers may still purchase marked ivory

Source: *Sutton (2010) tailored to SIMs ** This study

12.7 A Note on COVID-19

My ongoing correspondence with participants suggests that poaching was rampant during COVID-19. Asanja Africa revealed that poachers sought shelter in the mess tent during heavy rains, and although rangers were informed, a follow-up was not possible due to the flooded routes and a subsequent loss of tracks.

Although no data support these speculations, it is presumed that Tanzanian fences may have stockpiled illegal tusks awaiting international transportation to resume. Consequently, rural poachers will have experienced decreased demand, however, some poaching units may have used the absence of tourists and stranded rangers for low-risk poaching. Subsequently, they may have also stockpiled ivory in buried storage. Moreover, with a decrease in tourism income, some individuals employed in tourism, and perhaps to a lesser degree some local communities (highlighting the realities of the dispersal of tourism returns), may have been influenced to participate in poaching.

In addition to the uncertainty added by the COVID-19 pandemic, this research was conducted when Tanzania faced the demise of the late President John Pombe Joseph Magufuli, an advocate for action against poaching (Alden & Harvey, 2021). Vice-President Samia Suluhu Hassan was sworn into the presidency to become the first female president of Tanzania. Consequently, Tanzania may be on the brink of policy change with possible implications for (or possibly against) the recommendations of this study.

12.8 Concluding Crime Prevention Strategies for SIMs

> *"Haraka haraka haina baraka" – Haste makes no blessings, going slowly brings progress – Swahili Proverb*

Research within social sciences evolves slowly, and the effect of one study to change the world immediately is rare. This study highlights the importance of research from a decolonised lens to understand the problem before embarking on solutions that may not fit. This study presents potential mitigative strategies and the limitations of those offers for policy and practice to the best of its capabilities. At the start of this project, there was no clear picture of the distribution chains and typologies of distributors and markets in Tanzanian SIMs. Project consultation and policy dialogue with partners can now take place as the markets have been mapped and better understood through this study.

Data analysis in this study has demonstrated the value of the MRA and has allowed this chapter's, at moments, speculative but grounded analysis to offer a framework for interventions.

It is most probable that SIMs will, unfortunately, continue to exist and require a longer-term MRA to support this study's presentation of data-informed, locally tailored crime prevention tactics to allow elephant populations to recuperate from the relentless demand for ivory.

Chapter 13: Conclusions and 'Visions for the Future'

> *"Elephant is always going to have a hard time…. Even if they reproduce…they're going to have to be culled…they're always going to be killed for their ivory…."* OSP

In many ways, the research findings have reaffirmed an internal paradox whereby I remain simultaneously pessimistic and optimistic about the plight of elephants. Pessimistic because the data analysis has reaffirmed the multi-faceted and entrenched factors that continue to feed the trade of SIMs in East Africa (and beyond). Optimistic because the research has demonstrated that the difficulties in tackling SIMs should not be conflated with a 'delusion of permanence'; there are many talented and experienced people committed to tackling SIMs and, in reflecting on my analysis, the MRA offers promising opportunities to disrupt SIMs.

Against the ascribed aims and objectives, this chapter draws together the findings of this study, offering insights from the fieldwork and data analysis. Whilst this is a research project, not a policy paper, the findings allow for a number of significant recommendations.

13.1 Overview

As a minimum, all research must demonstrate an original contribution to knowledge. Importantly, this research appears to be the first academic analysis drawn from interviews conducted directly with elephant poachers and ivory traders suspected to be active in SIMS and those incarcerated in correctional facilities for their alleged engagement in Tanzanian SIMs.

This study offers the first known *empirical e*xploration of the MRA as a model for tackling the IWT (Moreto & Lemieux, 2015a; Schneider, 2008). As such, this study provides original contributions to the existing literature on wildlife poaching and the IWT through a milieu of concentrated field research informed by the MRA.

Thematic analysis (Braun & Clarke, 2006) was used in this investigation of 67 in-depth interviews, accommodating the need to organise the data as guided by the MRA while simultaneously accounting for new data to emerge outside the scope of the MRA.

The data revealed many stimuli for ivory poaching and illegal trading, which could be robustly or loosely connected to poverty. This study found many roles within SIMs, including transporting and storing firearms and ivory, marketing buyer to poacher for a commission, rural and urban fences or sponsors, guard of weapons, carriers of tusks, elephant *fundis* (shooters) and tusk extractors. Subsequently, the analysis of the data allowed for typologies for the distributors and markets of stolen ivory in Tanzania, which brings to the forefront the heterogeneity of theft that the MRA acknowledges; what works for reducing household burglary may not work for bank robbery or, indeed, the theft of ivory. This further emphasises the importance of local geographical and species-specific crime research through the MRA

before policy dialogue, recommendations, and reduction interventions can be considered and implemented.

As provided by the MRA through SCP, there is an opportunity component behind the commission of all crimes. Opportunity theories were examined in this study, incorporating RCP, RAT, and CPT (Ch.3), and a critical understanding of the influences of elephants' everyday movements, seasonal migration, seasonal influences (dry and wet season), and offender's knowledge of '*guardians*' or ranger posts and their local environment. In addition, the notion that one crime creates opportunities for another (Ch.3) is addressed through the trade of illicit firearms and ammunition (Appendix 3).

The study also uncovered 'tempting products' under SCP, specifically, CRAVED and CAPTURED crime reduction planning tools. Simultaneously, the extensive literature review considers ivory's cycle as a consumer good (innovation, growth, mass market and saturation) and its impact on society (Mann & Sutton, 1998; see RAT). Organising the information under the guidance of the MRA allowed the discussion on 30 decolonised and local data-evidenced responses to mitigate SIMs. These are presented and discussed with consideration of crime displacement.

13.2 Research Aims, Objectives and Limitations

This study was designed to investigate the central question: "*can the MRA be used to understand and mitigate the illegal ivory markets in Tanzania?"* The question was addressed by exploring the similarities and differences between SGMs and SIMs as informed by elephant ivory poachers' and traders', park rangers' and other stakeholders' experiences and perceptions.

Through an in-depth investigation of the current *MO* of theft and trade of illegal ivory, this study concludes that a locally tailored MRA is both applicable and beneficial to tackling Tanzanian SIMs, not least because it has the potential to increase the risks and efforts for poaching teams and various fences but also its decolonised approach to the issue of illicit markets. Drawing on the research data, this study concludes that the MRA organises the findings of this previously opaque illicit market into typologies and assesses the potential reduction approaches using locally collected data tailored to that specific market.

Notably, several nuanced intersections and differences between Western SGMs and Tanzanian SIMs were uncovered through TA:

- The participation process is broadly the same when considering the fence's recruitment of thieves, network recommendations and guidance from those already involved.
- The theft of both SIMs and SGMs depends on the market's existence. Without a market, the theft of ivory, be it planned or opportunist, would not occur. Although

emotion-driven retaliatory killing in HEC may still take place in the absence of a market, in these circumstances, the ivory is not always extracted for sale.

- SIMs and SGMs follow a similar chain of transactions from the point of theft to the final disposal. Of note here is that this study was conducted without interviewing final consumers outside of Tanzania.
- SGMs and SIMs encompass the blocks of crime planning and disposal *permutator* presented as a graphic heuristic device in this thesis. Importantly, these markets share similar details, such as using taxis during the theft (SGMs) and the Tanzanian equivalent of motorbike taxis (SIMs).
- Markets involve theft to order, especially in established networks and chains of transactions.
- Both markets have the same distributor typology, allowing some SGMs' crime prevention strategies to be tailored for SIMs. Concerning convergence, SIMs have an additional distributor, the marketer, who networks a poacher to the buyer of ivory for a commission.
- The MRA in the published literature focuses on a diverse range of products, whereas the MRA in this thesis focuses solely on ivory.
- A more prominent relationship exists between drug use, theft, and participation in SGMs than in SIMs.

Building on this, this study concludes that *the MRA can be used to understand and mitigate illegal ivory markets in Tanzania* for several interconnected reasons:

- The crime *permutator* model revealed flexibility and accommodated theft and dealer organisation in stolen ivory until the disposal out of Tanzania. This appears invaluable in structuring and categorising the complexities from theft to disposal. This breakdown allows specific mitigative strategies to be addressed in each step (Ch.12).
- Identifying the typologies of distributors and markets and drawing on the existing presentation for SGMs allows for the complexities of different distributors and markets to be better understood. This also allows them to be organised in a way that does not seek to 'shoehorn' them in pre-existing typologies.
- The diverse information needed to inform the MRA clearly accommodates ivory markets since numerous operators and factors influence the market from supply through theft to demand.
- The MRA's flexibility and commitment to multi-faceted solutions allow for the various components of wildlife products in rural environments in developing countries to be considered. Unlike other Western strategies that are 'shoehorned' into non-Western environments only to be subsequently blamed on the *problems* of African nations when the policy fails, the MRA, from the onset, encompasses efforts to understand the local situation to guide the policy response. Accordingly, this study finds that the Western-designed MRA is not incompatible with a decolonised approach.

Previous efforts in conservation that have colonial foundations have typically been mainstreamed in policy. By re-framing poaching through the MRA lens and incorporating a decolonised approach, our understanding of how ivory is poached locally and sold locally, nationally, and globally arguably becomes easier to navigate. Dependent on this outcome and the empirical findings of this field study, this research contributes by recommending the MRA for SCP in green criminology and specifically for illegal wildlife markets. In essence, this research provides empirical support for the theoretical propositions in existing green criminology literature (see Section 3.2.1). This is, of course, a recommendation on the use of the MRA to inform reduction strategies. The long-term exploration of the MRA's monitoring of reduction strategies remains beyond the scope of this research.

13.2.1 Concluding on the Aims and Objectives

This sub-section reveals how this study met the introduction's eight specific aims and objectives.

To meet objective one (to analyse historical and contemporary literature on illegal ivory markets), Chapter 2 explores and consolidates literature on historical markets for ivory, while Chapters 3 and 4 present the published literature on SCP and the MRA, with the literature aligned to the IWT where possible and appropriate. Thereafter, Chapter 4 highlights the lack of published information on local ivory markets in Tanzania and the need for this study to understand one of the primary source countries and local markets for illegal international ivory exports.

This research utilised all the opportunities presented to the researcher to conduct in-depth interviews with potential and alleged ivory poachers to address the exploration of the motivations for the theft of and trade in illicit ivory as outlined in objective two (Ch.8 & Appendix 3). With the information provided to meet objective two, this research also uncovered how elephant ivory is stolen, concealed, disguised, transported, and disposed of in the illicit markets (objective three), as presented in Chapters 7-11. Objective three was examined in light of comparative views from enforcement and poacher sample groups.

Objective four (to identify and seek to create a typology of Tanzanian SIMs) is met through Chapter 11, which presents typologies of the distributors and the markets in Tanzanian SIMs compared to those for SGMs by Sutton (1998). This study could not provide a typology of the buyers of stolen ivory located outside of Tanzania (after export), which remained beyond the scope of this study. However, Chapter 11 also addresses the additional objective concerning poachers' choice of a suitable target for theft concerning the CAPTURED model delivered by Moreto and Lemieux (2015a).

In meeting objectives one to four, Chapter 12 presents 30 propositions to mitigate Tanzanian SIMs, therefore addressing objective six, which called for responses for a long-term MRA to disrupt local SIMs. As the research addressed objectives one to four and six, they informed objective five by concluding that the MRA can be beneficial for reducing ivory *theft* in

Tanzania. In turn, this research contributes to green and conservation criminology and, to a limited extent, SDG 15 (*Life on Land*) (SDGs, ND) by empirically applying the theoretical propositions to apply the MRA under SCP for illegal wildlife markets addressing objective seven (to contribute to green conservation criminology and sustainable development goal number 15, Life on Land (SDGs, ND)). If this study's propositions were to be considered and implemented, leading to positive mitigation of SIMs, only then would this study's contribution to SDG 15 become more robust.

13.2.2 Limitations of the Research

The boundaries and limitations expressed in the Introduction to this study remain the same. They are concisely presented here to address the realities of fieldwork:

- This study presents the initial foundation and starting point for a longer-term MRA.
- This study does not consider the consumers of stolen ivory located outside of Tanzania. In considering this, the data collection and analysis were designed to encompass Tanzanian markets rather than differentiate between regional SIM practices. As such, this study is unable to make comparative observations on the *MO* of poachers across different regions within Tanzania.
- This investigation was conducted without a formal pilot study, compensated by a non-traditional pilot study (Ch.6).

In addition, some of the findings have been omitted, grouped or decontextualised to ensure that respondents' anonymity – and safety – were not compromised:

- Due to ethical concerns regarding participant identification, details from the data have been removed, and the participants are classified by sample groups instead of individual code names.
- Dictated by the gatekeepers' time stamps of permits, safety concerns, and limited funding, some poacher participant interviews became *missed opportunities*. A more prolonged phase of data collection to build trust and increase the snowballing of participants may have contributed to additional interpretations and lived realities of Tanzanian SIMs being incorporated. Whether theoretical saturation was reached will always be a moot point in any research project. However, in recognising this in reflective practice allows for this to potentially be incorporated into research under the Temboiworry proposal (Appendix 5).
- Given the methodology of opportunistic sampling, this research was not designed to achieve gender or socio-demographic balance. As the data analysis suggests throughout, this research recognises the integral role of females in assisting poaching teams and in enforcement (as rangers, police, and correctional officers), and future research could benefit from better incorporating these voices.

Whilst recognising that this study's research findings on the applicability of the MRA to SIMs are very much foundational, this should not detract from a piece of research that represents a highly original contribution to knowledge. Moreover, the findings meet the originally proposed aims and objectives. Ultimately, this study explores and applies the core concepts of the MRA and the findings of the MRA for stolen goods (Sutton, 1998, 2010) and uses this information to propose a tailored long-term MRA for Tanzanian SIMs.

13.3 Original Contributions to Knowledge: Acknowledging the Gap

As mentioned, and demonstrated in the methodology, this study is the first known academic account of interviews with elephant poachers in Tanzania and a 'real-world' empirical application of MRA intelligence gathering concerning the IWT. The interviews conducted in this study bridge the gap and provide a critical analysis of the motivation(s) to participate in SIMs (Ch.7 & 8), how the ivory moves from theft to trade (Ch.9 & 10) and assist in creating SIM typologies (Ch.11) while laying the foundations of a long-term qualitative database and MRA (Ch.4; Sutton, 1998).

The original contribution is not limited to the primary research, with the critical literature review demonstrating that the current threat posed by SIMs has to be located within the historical demand for – and use of – ivory. This also has to be contextualised in previous wildlife crime using SCP approaches, focusing on East Africa. Finally, this study provides critical and comparative reflections on the literature whilst aligning it to the international and East African ivory markets and to the existing body of work on the MRA and Western and Tanzanian SGMs.

In light of the limited literature on elephant poaching based on interviews with elephant poachers, it can be assumed that the social discourse of contemporary local ivory markets in Tanzania is speculative. This study bridges this gap by providing an evidence-based foundation for future discussion with the recommended inclusion of the MRA for wildlife.

Ranger authorities and police officials in the districts surrounding the PAs have a plethora of critical knowledge of poachers' experiences and the theft and trade of ivory. However, their knowledge has not been previously presented alongside the elephant poachers' experiences. The interviews with both participant groups enabled this study to illuminate the perspectives of each side and guide the development of focused strategies for enforcement agencies.

This study contributes to the chain of transactions for illicit firearms used in SIMs (Ch.8; Appendix 3; Working document supporting this thesis). This should be seen in conjunction with making less opaque the complexities of how ivory is stolen, concealed, disguised, transported, and disposed of in Tanzanian SIMs (Ch. 9 & 10).

The data allow for the first-ever typology of markets and distributors for Tanzanian SIMs, highlighting the similarities and differences to the more traditional SGMs (Ch.11). At the same

time, the data contribute to the current knowledge of the local illegal ivory prices, while also providing insights for future researchers into the intricate complexities of ivory prices (Ch.10).

The research provides a framework for understanding a longer-term MRA for Tanzanian SIMs, leaving the next step of evaluating and implementing the 30 proposals open to policy dialogue (Ch.12).

Finally, this study addresses the knowledge gap by concluding that the previously suggested use of the MRA for wildlife is suitable and beneficial for mitigating illegal wildlife markets.

13.4 Visions for Future Research

Drawing on these conclusions, I propose here a number of reflections and recommendations for those interested in undertaking future research in this area:

- Source flexible funding;
- Allow ample time for gatekeeper access;
- Incorporate an in-depth understanding of the factors that influence the price of ivory before data collection;
- Incorporate non-stakeholder participants and indirect-stakeholder participant sample groups (Ch.7);
- Incorporate gender and age balance in samples to explore (if any) other reduction interventions that are possible and to provide a larger picture of SIMs in Tanzania;
- Design demographic questions that resonate with the local, possibly regional, culture concerning household support, for instance (Ch.7);
- Design enforcement questions with attention to complexities of arrests of poaching teams (Ch.7);
- Adopt a decolonised perspective, open to accepting the local environment as it stands and proposing responses that can work within that situation, including an accounting of corruption;
- Maintaining long-term relations with participants to allow follow-up interviews, in-depth responses based on trust and future snowballing to potential participants;
- Data should be retained to allow future strategies when operators in SIMs revert to the older *MO;*
- Incorporating crime mapping data (locations of theft, storage, sale, export);
- Routine intelligence data collection from rangers, police, and other agencies;
- Further research is required on perceptions of animal rights for future policy dialogue;
- Research should explore childhood influences in SIMs involvement;
- Research should explore poachers' awareness of the negative perception of poaching;

13.5 Policy Recommendations and Realisation of Responses

This study proposes the MRA as an embedded practice to understand changes in the *MO* and responsive mitigative strategies (Sutton, 1998, 2010; Sutton, Schneider & Hetherington, 2001). In addition, this study proposes an open dialogue on the proposed 30 responses, with consideration of the MRA's interagency model (Figure 4) and crime displacement, should some tactics be considered for implementation.

As a longer-term policy recommendation, the MRA should be extended to neighbouring countries due to the cross-border operations of SIMs to facilitate regional responses. In conjunction, an MRA in end-consumer countries is needed to complete the chain of transactions and to recognise, in the evaluation of the applicability of the MRA to SIMs, how urban and rural markets are interconnected. However, the question remains whether a broad MRA on all ivory products will suffice or if the approach needs to be tailored to Tanzanian ivory. The latter is challenging to enforce, given the difficulties in identifying ivory.

It is hoped that the findings and recommendations of this study can be used as a springboard by policymakers and future researchers to shift wildlife crime research from written suggestions to applied approaches, moving the conservation forward to researcher-practitioner.

> *"[L: Why not stop poaching then?] Because of everything you get from ivory, and you know again, even if this finishes tomorrow, tomorrow, I'll get another. Till next time."* PPP

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Appendix 1: Interview Schedules, Consent Form and Protocol

Interview Schedule for Poacher Participants:

Introduction:

Who I am.

What is My PhD about?

Thank the participant for agreeing to the interview.

Read the consent form and the preciously worded protocol.

Ask permission to tape the interview and begin.

Demographic questions:

Researcher to fill – Male or Female

How old are you?

Are you currently employed? [To establish where the interviewee's money comes from]

How many people are in your household? [To establish expenses faced by the interviewee]

Poaching *Modus Operandi* Questions:

What made you decide to poach and deal in poached ivory?

> The first time, did someone offer you money if you killed elephants to get them ivory or did you kill elephants for their ivory and then find someone to sell it to?
>
> Do you tend to poach ivory to order now, or only look for a buyer once you have it?

When was the last time you extracted ivory?

On the first occasion

Were you alone? [Researcher to remind participants not to mention any names or build on interviewee responses about specific roles if with co-offenders.]

How did you come across the elephant?

Once you come across it, what did you do next?

If the elephant was in a park, how did you gain access?

So, would you say it was a spur-of-the-moment action or planned?

On subsequent occasions

How do you typically poach ivory?

Are there exceptions?

If so, explore why.

Do you have any fear from the elephants and/or the ranger patrol teams?

Have you ever been caught? How did this make you feel? What happened during the process of apprehension?

Would you say there is some level of tolerance for ivory poaching by the authorities if you know them personally?

What tools did you use to get the ivory?

So, in total, how many tusks would you say you have extracted? Has this amount increased or decreased over time?

Was there one time when you were operating with exceptionally high volumes of ivory? If so, why? Or vice versa, has there been a time when you stopped? If so, why?

Have you bought ivory to meet your demand when your stock is running low?

Have you ever taken ivory from stockpiles/ warehouses?

Which has been your most memorable moment and why?

To conclude this section, could you summarise what is typically done during ivory extraction?

Do you know of other poachers that do it differently? Are there any strange stories that you have heard?

Market-Based Knowledge Questions - Local Markets.

On the first occasion

How did you sell the ivory? Is it done in cash or mobile money (MPESA)?

Are any tricks used, such as wetting the ivory to increase the weight?

Did you have to store the ivory first? Or, upon being followed by officials, have you had to dump the ivory?

How much money did you make from two tusks?

Did you sell to local Tanzanians or foreigners?

Do the people you sell to take care of all the shipping?

On subsequent occasions

Typically, how do you sell the ivory? Is it competitive with other poachers?

Do you store the ivory first?

How much money do you make from two tusks? How did you negotiate the price? (Did you have to haggle, or does the market operate on a set price? Did a good dealer make them want to poach more ivory? Have they been ripped off?) [Researcher to remind participant not to mention any names and to build on the interview responses regarding dealer profiles]

Can you tell if there is a change in local prices for ivory? If yes, how do you know?

Which trade route do you feel is the safest way to unload your ivory?

Do you buy from other poachers?

Do you use technology to poach?

Do you sell to local Tanzanians or foreigners?

IF they mention Chinese nationals*: - Do you think the rural labour camps have impacted the amount of ivory you can sell?*

Are there any exceptions to these poaching/transporting/storing selling ways you typically operate that make you do these things differently?

Explore what and why.

How hard would it be for me to buy ivory?

Market-Based Knowledge Questions - International Markets:

Do you know how much ivory is sold for in China?

How do you measure the amount of ivory in terms of carvings, number of tusks, or kilograms?

Do you know that China and Hong Kong have banned ivory? What do you think will be the effect of that?

Do you know how much buyers would spend on tusks in neighbouring countries?

Opinion Questions:

Would you consider doing it again, and what would you do differently?

Have you sold any other animals/ animal parts? Which wildlife has the most value for you?

What are your earnings from ivory most used for?

Is elephant meat widely consumed, or is its hide used?

Did you have any feelings when you killed the elephant?

Are you aware of the benefits of an elephant to an ecosystem and the harm they can do to a farm?

Do you see elephants as Tanzanian heritage that should be protected? If so, what do you think the government can do differently to be successful?

Are you aware of the media's worldview on poaching? What are your thoughts on that?

Would it matter if they became extinct?

Have you heard the saying that elephants never forget an enemy? Do you believe this to be true?

Closing Questions:

What did you think of the interview?

Were you comfortable throughout the interview?

Do you think I may have missed some points or anything else you would like to add?

Do you know any other people who have sold ivory that would be willing to do this interview?

If this study continues in the future, would you be willing to be interviewed again anonymously?

Interview Schedule for Enforcement Participants:

Introduction:

Who I am.

What is my PhD is about?

Thank the participant for agreeing to the interview.

Read the consent form and the preciously worded protocol.

Ask permission to tape the interview and begin.

Demographic and Ranger-Specific questions:

Researcher to fill – Male or Female

How old are you?

What park do you represent now, and what is your position there?

When did you become a ranger, and for which parks?

Why did you first become a ranger?

How many people in your household do you support?

Are some ex-poachers now rangers? On the other hand, are there any rangers who have turned to poaching?

Poaching *Modus Operandi* Questions:

How do poachers start dealing in ivory? Are they offered money to kill elephants to get ivory, or do they kill elephants for ivory and then find a buyer?

When was the last time you found an elephant killed by a poacher, and where?

What procedure is there to report to the rangers' office?

How do you track poachers?

Where would you say you find the most poached elephants?

In your entire career as a ranger, how many poachers have you:

(a) Apprehended in the field
(b) Come across in person in the field but not been able to apprehend?

How do you think poachers gain access to national parks?

Do some rangers know poachers personally?

If yes, do you think there is any tolerance for ivory poaching among those rangers who know the poachers personally?

How do poachers extract ivory, and using which tools?

Do you have a trade-off and tips (informant) relationship with known poachers?

Do you know if poachers are locals from the surrounding area?

Are some from further away?

Where do most come from?

Market-Based Knowledge Questions - Local Markets:

How do they sell the ivory?

Are any tricks used, such as wetting the ivory to increase the weight?

Do they store the ivory first? If yes, how/where?

How much money do you think they gain from two tusks?

Which trade route do you feel is the most popular to offload ivory?

Who do you think are the major buyers, Tanzanians or Foreigners?

IF they mention Chinese nationals: - Do you think the rural labour camps have impacted the amount of ivory they can sell? If so, why?

Market-Based Knowledge Questions - International Markets:

Do you know how much ivory is sold for in China?

How do they measure the amount of ivory in terms of carvings, number of tusks, or kilograms?

Do you know that China has banned ivory? What do you think will be/is the effect of that?

Do you know how much buyers would spend on tusks in neighbouring countries?

Opinion Questions:

Do ivory poachers deal in other animals/ animal parts?

Do you think they feel any guilt when killing an elephant?

Is elephant meat widely consumed, or is its hide used?

Are you aware of the benefits of an elephant to an ecosystem and the harm they can do to a farm?

Do you see elephants as Tanzanian heritage that should be protected? If so, what do you think the government can do differently to be successful?

Are you aware of the media's worldview on poaching? What are your thoughts on that?

Would it matter if they became extinct?

Have you heard the saying that elephants never forget an enemy? Do you believe this to be true?

Closing Questions:

What did you think of the interview?

Were you comfortable throughout the interview?

Do you think I may have missed some points or anything else you would like to add?

If this study continues in the future, would you be willing to be interviewed again anonymously?

Interview Schedules Development During Data Collection

Table 55: *Questions proposed for enforcement*

Questions proposed for enforcement	**Participant**
"How the…enforcers…target the proceeds of crime because…with the new jurisprudence…the long sentences are not always deterring."	OSP
"Why game scouts wanna be game scouts?... Are they just there to be a game scout because it's a job, or are they truly there 'cause they wanna protect wildlife?"	OSP

Table 56: *Questions proposed for ivory poachers and traders*

Questions proposed for ivory poachers and traders	**Participant**
"How do they know, for example, where they're going put their camp?"	OSP
"…how do you communicate with people…coming to move the [load]*…."*	OSP
"Maybe you could also focus… on the financial aspect of investigation… the most efficient way…is to go for their properties, their profits."	OSP
"When arrested, would they do anything differently?"	OSP

Table 57: *Approval of interview questions*

Approval of the questions	**Participant**
"You have touched on many things, so with this design, as in, it's good."	RP
"A question that you have forgotten? I think there isn't… The big issues are the ones discussed."	PPP
"…these questions will not feel, to someone else, like you're spying on him…what you do is okay."	OSP
"I see that your questions are really good because they have also really stretched my understanding…."	PP

Table 58: *Disapproval of interview question(s)*

Disapproval of the questions	**Participant:**
When questioned if they would do anything differently: *"I don't like this question. I don't like this question. You can't ask this question. It is inconsiderate."*	APP
"Just ask me questions concerning animals but questions about the offices that you should not. [L: But it regards what you need to protect the animals]. I am not the spokesperson for that. There are people for that. By the way, I am only talking to you because you told me you are at school and you need to know things, that's why I have decided to answer…. But if it could be for your personal reason, I would not have talked to you. There are people for these things."	RP

Consent Form

PLEASE NOTE THAT THIS CONSENT INFORMATION IS WRITTEN IN AN INFORMAL MANNER TO ALLOW BETTER UNDERSTANDING FOR PARTICIPANTS AND ALSO FOR THE EASE OF TRANSLATION INTO SWAHILI. It is in accordance with the Guidance Note BLSS/ Ethics 2

Participant Consent:

Thank you for agreeing to meet me and hopefully participate in my data collection about ivory poaching.

This research aims to understand how a person decides the best conditions to kill an elephant. Please know that this interview is not about getting information on people or getting anyone in trouble. It is simply to know how an individual is driven to poach, how they do it and how they manage to sell the teeth. It is also to help me do my research based on your unique knowledge of the process and the markets for elephant teeth.

Many people, especially the international community, cannot understand why and how someone can kill a large mammal, also seen as an adverse action. This is your chance to tell your story (if you are a ranger or another stakeholder, the account of your experiences with them) to the world and to allow me to learn from your knowledge.

I am fully aware that this is a sensitive topic, so I would like to give you some information to help you decide if you would like to participate:

My research from the beginning to the end of publication will never reveal your name. You will be called Participant X, Y, and Z. This is so that no one can identify you except me.

The interview will be recorded on the recorder before you so I can listen to it properly later and transcribe it.

Remember, the aim is not to get you in trouble, so please do not tell me about any information on any illegal activity planned for the future or an activity that has been done in the past that you have not been caught for.

It is important not to get anyone else in trouble, so please do not give me the names of people you have worked with or encountered during your undertakings. You can refer to them by a code name like the one I gave you.

If you mention some names, I will change these when I write the interviews.

If I feel you are sharing information that could get you or someone involved in trouble, I will stop the recorder and delete what has been said before proceeding with the rest of the interview.

The conversation we have now will be kept by only me and will not be deleted in case I need it for future projects. Nevertheless, I will ensure it has been saved in a password-protected manner online, and no one else can access it except me.

Unfortunately, as I will be travelling back to the UK, we cannot communicate to edit the information you give me should you wish to at a later date. If you want to change your response during the interview, please let me know, and we can re-record your new response.

A computer *[soft]* copy will be saved by me and will be password protected. However, I will also email my teacher [DoS] a copy if my computer gets damaged. He will not access the interview but will only keep it for safekeeping.

You do not have to answer all the questions. Please feel free to answer only those questions that you feel comfortable with.

I have brought with me some juice cartons and biscuit boxes. Please accept these as a gesture of gratitude for welcoming me regardless of your choice to participate or not to participate in this interview.

Now that you have all the essential information. Please feel free to decide whether you wish to participate in this interview.

If you have any questions before we begin, please do not hesitate to ask me. We will start the interview by stating that you have been provided with this consent information and are willing to participate in this interview.

Worded Protocol for Serious Crimes

PLEASE NOTE THAT THIS CONSENT INFORMATION IS WRITTEN IN AN INFORMAL MANNER TO ALLOW BETTER UNDERSTANDING FOR PARTICIPANTS AND ALSO FOR THE EASE OF TRANSLATION INTO SWAHILI

This guide has been created to assist the participants in managing sensitive information during the interviews. The participants, or the interviewees, have been advised to be mindful not to share sensitive and incriminating information during the interview, as indicated in the consent forms.

Sensitive, incriminating information or potentially serious crimes encompass either previously conducted undetected crimes or future plans for criminal activity. In addition, it includes the names of other offenders who may have taken part in the crime, the names of the buyers and sellers of ivory along the supply chain, and the names of government officials and rangers who may have been corrupted.

The more significant part of the responsibility falls upon the interviewer to change the subject when they feel the participant may be close to revealing sensitive information or stop recording the interview.

Participants must note that crimes include all those mentioned in the Tanzanian and British penal codes.

Other keywords and crimes that the interviewees will be observant to avoid include mention of committed but not prosecuted for or future plans:

Serious acts of crime:

Murder, Sexual Harassment, Rape, Theft, Burglary, Robbery, Blackmail, Extortion, Assault, Vandalism, Drug dealing, Drug Smuggling, Human Trafficking, Kidnap

Anonymity

Name shaming of other offenders and corrupt officials. Specific locations and or addresses of other offenders and corrupt officials. Detailing the unique physical characteristics of other offenders and corrupt officials may lead to their identification. Describing unique physical characteristics of their own that may lead to their identification.

Appendix 2: Letters of Access:

Organisations and Their Mandates Pertaining to this Study

Table 59: Organisations pertaining to this study and their mandates

Organisation	Mandate
	Parastatal Organisation
Tanzania National Parks Authority (TANAPA)	Management of all national parks across Tanzania. [https://www.tanzaniaparks.go.tz/].
Tanzania Wildlife Research Institute (TAWIRI)	Management of conduct and coordination of all wildlife research in Tanzania. Managed under the Ministry of Natural Resources and Tourism [MNRT] [https://tawiri.or.tz/].
Ngorongoro Conservation Area Authority (NCAA)	Management of the Ngorongoro area specifically [https://www.ncaa.go.tz/].
Tanzania Commission for Science & Technology (COSTECH)	Management of conduct and coordination of all research in Tanzania [https://www.costech.or.tz/].
	Others
Tanzania Wildlife Management Authority (TAWA)	Management of game reserves, game control areas and wildlife outside of PAs. Autonomous and public organisation. [https://www.tawa.go.tz/en/].
Wildlife Management Areas (WMA)	Village and community-based communal land exclusively for wildlife habitats. Co-management with the government under the consortium Community Wildlife Management Areas. [https://www.twma.co.tz/].
Wildlife Division (WD)	Facilitation and management of WMAs. Assists in awareness-raising and information dissemination to communities.
National Task Force Anti-Poaching (NTAP)	Platform uniting enforcements, NGOs and security efforts in anti-poaching while co-operating with the National Prosecution Services.
Ministry of Natural Resources & Tourism (MNRT)	Management of natural, cultural and tourism resources. Has its officers of natural resources. [https://www.maliasili.go.tz/]
Regional and District Commissioners Officer	Public officers appointed by the President to carry out functions per their mandate. (Picard, 1980; Regional Administration Act, 1997; Tordoff, 1965)
Village Councils	Manage Land and Forest Reserves (VLFR) and may be entrusted with wildlife policing.
Private Organisations	Private estates and land managed for wildlife conservation, such as Grumeti Reserve and Singita.

Working with Gatekeepers: Access to Research in Tanzania

Research in Tanzania must be permitted by the parastatal organisation COSTECH (Devex, 2020). Having applied online, I was informed that an in-person application is most likely to be considered, accompanied by a letter of invitation from a Tanzanian university. The latter process was lengthy but resulted in an invitation from the Nelson Mandela African Institute of Science and Technology. Thereafter, my support network assisted with in-person visits and informed me of further delays due to fees and prerequisite clearance from TAWIRI before COSTECH could permit this research.

Further demonstrating the sequencing challenges, TAWIRI informed me to apply for a Class C immigration permit; and pay to access each national park covered by the study (researcher, driver, and car costs) and for a TAWIRI permit. Gatekeeper fees are not uncommon (Boddy et al., 2006; Clark, 2010; Clark & Sinclair, 2008) and benefit the agency to develop within that field (Corra & Willer, 2002). However, after meeting these requirements, I was informed that the application could not proceed without access from TANAPA.

Aside from the logistical challenges of liaising between TANAPA and TAWIRI, one major obstacle was convincing TANAPA of this research's trustworthiness (Clark, 2010, p.487). Authorities were convinced by emphasising the accommodation of cultural nuances and a decolonised approach.

Following this discussion, TANAPA permitted research in Serengeti and Ruaha National Parks. TAWIRI authorised the permit followed by COSTECH, validated the credibility and legitimacy of this study, gaining access and the trust of other organisations and, in some cases, participants.

Thereafter, I pursued access to the Tanzanian police force as they process those arrested in PAs, collaborate with the rangers on operations and control access to prisons. I complied and presented a comprehensive case file (letters of access; research instruments) to the Inspector General's Office through an advocate. I was cleared to research in Arusha, Dar-es-Salaam, Mwanza, Musoma, and Simiyu, with a pre-requisite first to gain permission from the Chief of Police and the Regional and District Commissioners of the relevant area.

Mr K. and Mr A. facilitated meetings with the regional and district commissioners. Through Mr A., I was introduced to a Natural Resources Officer (NRO) who assisted with regional prisons.

The aforementioned account demonstrates the importance of trusted and influential advocates in a host country and understanding important cultural practices, such as face-to-face interactions (Emmel et al., 2007; Wright et al., 1992). I recognise that such support and local understanding is not always present for all researchers, but I hope my reflexive account may assist other researchers.

COSTECH Research Permit:

TANZANIA COMMISSION FOR SCIENCE AND TECHNOLOGY
(COSTECH)

Ali Hassan Mwinyi Road
P.O. Box 4302
Dar es Salaam
Tanzania

Telephones: [illegible]
Director General: [illegible]
Fax: [illegible]
Email: [illegible]

RESEARCH PERMIT

No. 2018–498-NA-2018-178 17th September 2018

1. Name : **Laxmi Aggarwal**
2. Nationality : **British**
3. Title : **The Market Reduction Approach (MRA) to the Illegal Trade in Tanzanian Ivory**
4. Research shall be confined to the following region(s): **Mwanza, Dar es Salaam, Arusha, Manyara**
5. Permit validity from: **17th September 2018** to **16th September 2019**
6. Contact/Collaborator: **Dr. Julius Keyyu, TAWIRI, P.O. Box 661, Arusha**
7. Researcher is required to submit progress report on quarterly basis and submit all Publications made after research.

Dr. Amos M. Nungu

DIRECTOR GENERAL

TANZANIA COMMISSION FOR SCIENCE AND TECHNOLOGY
(COSTECH)

Telephones: (255 - 022) 2775155 - 6, 2700745/6
Director General: (255 - 022) 2700750&2775315
Fax: (255 - 022) 2775313

Ali Hassan Mwinyi Road
P.O. Box 4302
Dar es Salaam
Tanzania

Email: rclearance@costech.or.tz
In reply please quote: **CST/RCA 2018/1819/178**

17th September 2018

Commissioner General of Immigration
Ministry of Home Affairs
P.O. Box 512
DAR ES SALAAM

Dear Sir/Madam,

RESEARCH PERMIT

We wish to introduce **Laxmi Aggarwal** from **UK** who has been granted Research Permit **No. 2018–498-NA-2018-178** dated **17th September2018**

The permit allows him/her to do research in the country titled **"The Market Reduction Approach (MRA) to the Illegal Trade in Tanzanian Ivory"**

We would like to support the application of the researcher(s) for the appropriate immigration status to enable the scholar(s) begin research as soon as possible.

By copy of this letter, we are requesting regional authorities and other relevant institutions to accord the researcher(s) all the necessary assistance. Similarly the designated local contact is requested to assist the researcher(s).

Yours faithfully

Dr. Amos M. Nungu
DIRECTOR GENERAL

CC:

1. Regional Administrative Secretary: **Mwanza, Dar es Salaam, Arusha, Manyara**

2. Local Contact: **Dr. Julius Keyyu, TAWIRI, P.O. Box 661, Arusha**

3. Co-Researcher: **None**

TAWIRI Research Clearance:

Tanzania Wildlife Research Institute

Head Office P.O. Box 661, Arusha, Tanzania
Tel.: +255 (0) 27 254 9571 / 254 8240; Fax + 255 (0) 27 254 8240
E-mail: info@tawiri.or.tz
Website: www.tawiri.or.tz

Our Ref: TWRI/RS-342/2016/149

Your Ref:

Date: 28th June, 2018

Director General
COSTECH
P.O. Box 4302
DAR ES SALAAM

Att. Mr. Mashuhuri Mushi

RE: RESEARCH CLEARANCE FOR RESEARCH SCIENTIST.

At its 41st Research Programme Committee (RPC) Meeting of TAWIRI Board held on 15th June, 2017 at TAWIRI Headquarters Arusha recommended research clearance of research scientists but TAWIRI withheld research clearance of the below mentioned scientist on condition that she pay research fee. She has paid research fees, for which TAWIRI recommends issuance of research permit to her:

APPLICATION FOR RESEARCH CLEARANCE RENEWAL:

A: APPLICATION FOR RESEARCH CLEARANCE RENEWAL

Anna Estes
"Greater Serengeti Ecosystem Elephant Project".

Yours Sincerely,
TANZANIA WILDLIFE RESEARCH INSTITUTE

Dr. Julius Keyyu
FOR: DIRECTOR GENERAL

TAWIRI is responsible for the co-ordination of all wildlife research in Tanzania

Njiro W.R.C.	Gombe W.R.C.	Kingupira W.R.C.	Mahale W.R.C.	Tabora R.S.	Serengeti W.R.C.
P.O. Box 661	P.O. Box 1053	P.O. Box 16	P.O. Box 1053	P.O. Box 62	P.O. Box 661
ARUSHA	KIGOMA	UTETE-RUFIJI	KIGOMA	TABORA	ARUSHA

TAWIRI Research Permit for Serengeti and Ruaha National Parks:

Tanzania Wildlife Research Institute

Head Office P.O. Box 661, Arusha, Tanzania
Tel.: +255 (0) 27 254 9571 / 254 8240; Fax + 255 (0) 27 254 8240
E-mail: info@tawiri.or.tz, dg@tawiri.or.tz
Website: www.tawiri.or.tz

Our Ref: TWRI/RG/22/VOL.61/88/74

Your Ref:

Date: 01st October, 2018

Director General,
TANAPA,
P.O. Box 3134,
ARUSHA.

Dear Sir,

RE: INTRODUCTORY LETTER FOR LAXMI AGGARWAL

Please refer to the heading above.

The above mentioned research scientist is registered by TAWIRI and has a COSTECH permit to conduct a project titled, "*The Market Reduction Approach MRA) to the Illegal Trade in Tanzania Ivory*".

We are requesting for a free entry permit for her to enter and work in the Serengeti and Ruaha National Park for the period of 17th September, 2018 to 16th September, 2019.

With this letter please find the attached research permit and immigration receipt for your reference.

Yours sincerely,
TANZANIA WILDLIFE RESEARCH INSTITUTE

Dr. Angela Mwakatobe
FOR: DIRECTOR GENERAL

TAWIRI is responsible for the co-ordination of all wildlife research in Tanzania

Njiro W.R.C.	Gombe W.R.C.	Kingupira W.R.C.	Mahale W.R.C.	Tabora R.S.	Serengeti W.R.C.
P.O. Box 661	P.O. Box 1053	P.O. Box 16	P.O. Box 1053	P.O. Box 62	P.O. Box 661
ARUSHA	**KIGOMA**	**UTETE-RUFIJI**	**KIGOMA**	**TABORA**	**ARUSHA**

TAWIRI Research Permit to Transit in Ngorongoro Conservation Area:

Ngorongoro Conservation Area Authority

Ref. No. BD.158/711/01/56 08th October, 2018

Director General,
Tanzania Wildlife Research Institute (TAWIRI),
P.O.BOX 661,
ARUSHA.

E-mail: info@tawiri.or.tz

RE: **FREE ENTRY PERMIT.**

Reference is made to your letter with Ref. No. TWRI/RG/22/VOL.61/88/75 dated 01st October, 2018 regarding the above mentioned subject.

Ngorongoro Conservation Area Authority has granted a free entry permit to TAWIRI and COSTECH registered research scientist namely: **Laxmi Aggarwal** to transit NCA to and from Serengeti National Park for a period starting from **08th October, 2018** to **16th September, 2019.**

Kindly, while in the area you are advised to observe NCA rules and regulations.

Yours sincerely,
NGORONGORO CONSERVATION AREA AUTHORITY

Peter Makutian
For; **CONSERVATOR OF NGORONGORO**

Copy: - In charge Loduare and Naabi gate
Ngorongoro Conservation Area Authority

Head office: P.O. Box 1 Ngorongoro Crater. Tel. +255 27 2537006/19 Fax +255 27 2537007,
Direct Line +255 27 2537046
Email: [illegible] Telegram: NGOROASILIA
Liason Office: P.O Box 776 Arusha Tel. +255 27 2503339 Fax +255 27 2548752
Information Office: Tel. +255 27 2544625 Fax +255 27 2502603

All official correspondence should be addressed to The Conservator of Ngorongoro

TANAPA Clearance for Serengeti and Ruaha National Parks:

TANZANIA NATIONAL PARKS
OFFICE OF THE DIRECTOR GENERAL
P.O.BOX 3134, ARUSHA - TANZANIA

Ref. No: TNP/HQ/C.10/13 Date: 17/10/2018

Director
TAWIRI
P.O. BOX 661
ARUSHA

RE: **INTRODUCTORY LETTER FOR MS. LAXMI AGGARWAL**

Please refer to your letter Ref. No. TWRI/RG/22/VOL.61/88/74 dated 1st October, 2018 regarding the above subject.

I am pleased to inform you that free permit is hereby granted to **Laxmi Aggarwal** scientist to collect data in Serengeti and Ruaha National Park on a project titled, "*The market Reduction Approach MRA) to Illegal Trade in Tanzania Ivory*", between 17th September, 2018 to 16th September 2019.

The scientist is required to submit research/project questionnaires to TANAPA headquarters before data collection. Furthermore, the scientist/researcher is required to abide all parks rules and regulation. Finally, researcher is reminded not to publish any security related information during and after this study.

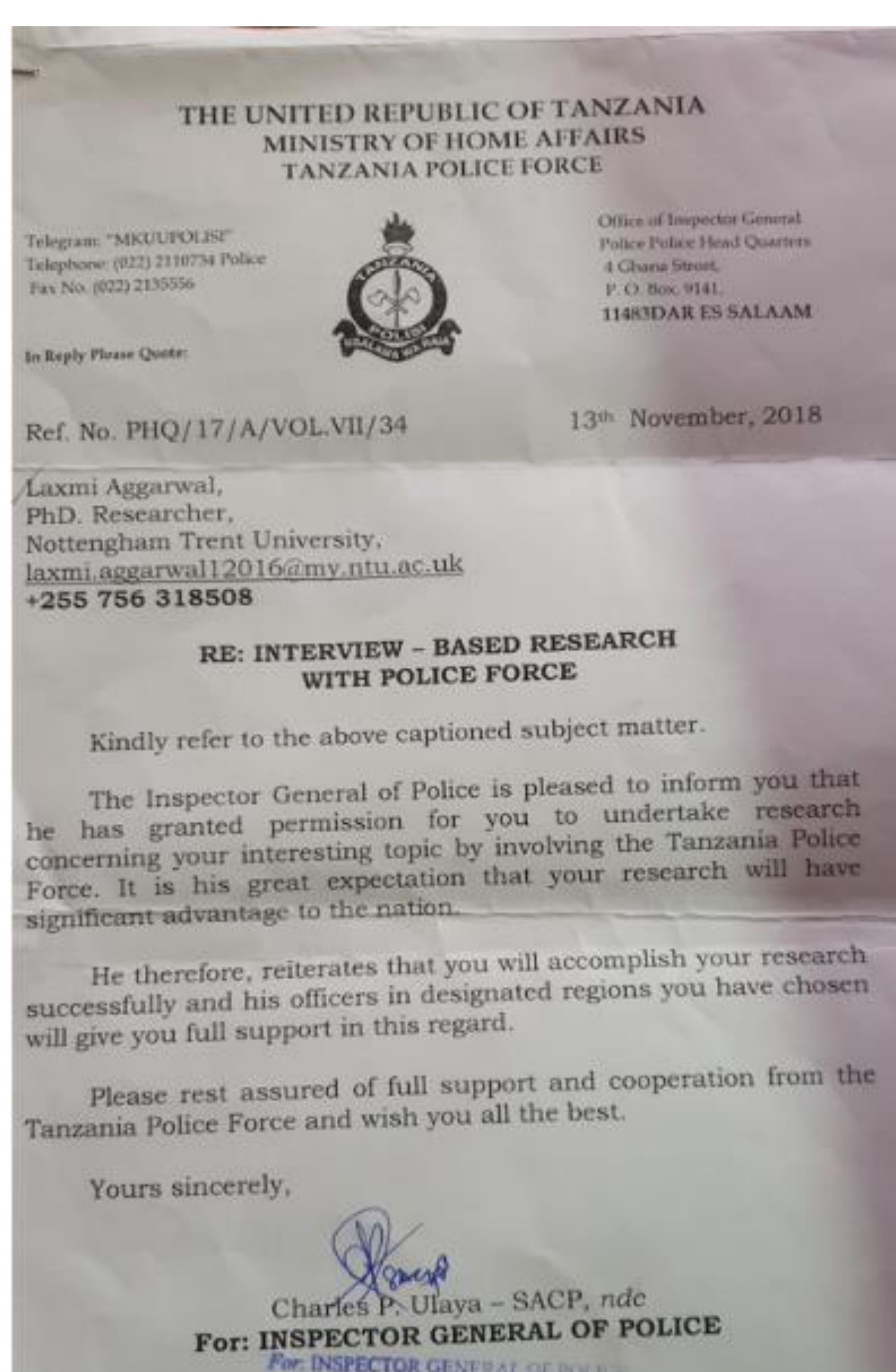
Massana G. Mwishawa
For: **DIRECTOR GENERAL**

c.c. Chief Park Warden:

- Serengeti National Park
- Ruaha National Park

TELEPHONE: +255-27-GENERAL LINE 297 0404 / 297 0405 **DIRECTOR GENERAL'S LINE:** 297 0407 **TELEFAX:** 297 0408 **E-MAIL:** info@tanzaniaparks.go.tz
"SUSTAINABLE CONSERVATION FOR DEVELOPMENT"

United Republic of Tanzania Ministry of Home Affairs Research Permit:



THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF HOME AFFAIRS
TANZANIA POLICE FORCE

Telegram: "MKUUPOLISI"
Telephone: (022) 2110734 Police
Fax No. (022) 2135556

In Reply Please Quote:

Office of Inspector General
Police Police Head Quarters
4 Ghana Street,
P. O. Box. 9141,
11483DAR ES SALAAM

Ref. No. PHQ/17/A/VOL.VII/34

13th November, 2018

Laxmi Aggarwal,
PhD. Researcher,
Nottengham Trent University,
laxmi.aggarwal12016@my.ntu.ac.uk
+255 756 318508

RE: INTERVIEW – BASED RESEARCH WITH POLICE FORCE

Kindly refer to the above captioned subject matter.

The Inspector General of Police is pleased to inform you that he has granted permission for you to undertake research concerning your interesting topic by involving the Tanzania Police Force. It is his great expectation that your research will have significant advantage to the nation.

He therefore, reiterates that you will accomplish your research successfully and his officers in designated regions you have chosen will give you full support in this regard.

Please rest assured of full support and cooperation from the Tanzania Police Force and wish you all the best.

Yours sincerely,

Charles P. Ulaya – SACP, *ndc*
For: INSPECTOR GENERAL OF POLICE

For: INSPECTOR GENERAL OF POLICE
TANZANIA

Appendix 3: Extra Notes and Data

1) Elephant Anthropomorphism

> *"…not just its size, or its long life, or its ivory; there is something else, perhaps its intelligence..."* (Moss, 1975)

Anthropomorphism (Sueur, Forin-Wiart & Pelé, 2020, p.1) has labelled elephants as *charismatic megafauna* (Courchamp et al., 2018; Ducarme, Luque & Courchamp, 2013). The temporal lobe is larger than humans, relative to brain size (Bates, Poole & Byrne, 2008; Haug, 1970) and perhaps is the reason for the saying *elephants never forget* (Bell, 1817; Boese, 2009; Rensch, 1957); recognition and memory within a herd (Soltis, 2013); cognitive and altruistic abilities (Bates et al., 2008; Galli, 201; Parsell, 2003; Shoshani, 1978); and seismic (Crader, 1983; O'Connell-Rodwell, 2007) and vocal communication (Langbauer, 2000; O'Connell-Rodwell et al., 2006). Such understanding could be used with technological advances that allow biomimicry in conservation (Kennedy et al., 2015).

The saying "*elephants never forget* "is essential to elephant anthropomorphism and dates back to 1817 in John Bell's magazine (1817, p.211), as found by this study using BigData IDD (Sutton & Griffiths, 2018; see also Cryer, 2010). The magazine narrates a compelling story of an elephant's relations with a soldier (Bell, 1817). Thereafter, the article immediately shifts to advertise ivory ornaments, suggesting that the romanticisation of elephants has negligible impact on the purchase of ivory.

Entertainment dates back to ancient Rome, where audiences were touched by the bewailing of speared elephants (Bostock & Riley, 1855). Despite this, elephants were extensively used in arenas and theatres (Carrington, 1958; Bostock & Riley, 1855). This continued through the eras with theatre, circuses, and zoos (Bell, 2004; Carrington, 1958; Jolly, 1976; McClellan, 2011; Schwalm, 2007; Symons, Barnham & MacDermott, 1882; Tait, 2016). Of note is George Balanchine's show featuring 50 choreographed elephants that played 452 recitals (Ramseyer, 2008). Despite the mistreatment of elephants, audiences remain unapologetic (Bradshaw, 2007; Carmeli, 1997; Eichelman, 2009; Gruber et al., 2000; Meyer, 2013; Wemmer & Christen, 2008).

Anthropomorphism has subjected elephants to the justice systems (Carrington, 1958), such as Mary the elephant, hanged in 1916 for the murder of her handler (Brant, 2010; de Waal, 2008; Gray, ND; Howard, 2016; Leafe, 2014; Medoff, 1990; Rare Historical Photos, ND; Schroeder, 1997; Washington & Sussman, 2013). By the very same anthropomorphism projected on elephants, they could be treated with equal legal rights (Berg, 2007; Cavalieri, 2001; Beirne, 2007, 2009; Beirne & South, 2007; Berg, 2007; Nurse, 2016; Nurse & Ryland, 2013; Tyler, 2015; Wemmer & Christen, 2008). However, it is arguably possible that trials and executions were largely conducted for sadistic public entertainment.

It is evident through literature that elephant anthropomorphism can be rapidly de-synthesised concerning audiences and ivory buyers.

2) Researchers Initial Reflections

My self-development has always included the insider-outsider complex and a deeper understanding of cultures created through the many countries I have lived, studied, and worked in. However, putting all those intimate thoughts and observations into words has been challenging. It has involved many drafts as this candid section brought out many vulnerabilities and fears of coming across as obnoxious, unethical, or even falling into the privileged saviour complex. Nevertheless, to the best of my ability, I have presented a picture of myself, how I perceive I have been perceived, and how my physical, stereotypical, and personal biases may impact this study. Here, I present my personal history, my views on poaching as a crime, and other such questions I had at the beginning of this research – some that may have lasted throughout this study.

2.1) An Introduction to the Researcher

There have been many scholarly attempts to understand Indian-Africans and those of British nationality (Desai, 2013; Dickinson,2012; Himbara, 1997; Hurlbert, 2020; Nair, 2008). There is little that I agree with, especially where cultural nuances have been missed. Irrespective of the studies, here I present myself.

My family's history is that of traders who moved from colonised India to colonised Tanzania, where they still are five generations later. They were given the option of a British passport, which my ancestors accepted. As a result, I share a hyphenated existence of primarily Tanzanian-Indian and then British identity. I learn and adopt from the cultures and knowledge I have acquired (including others I have lived and worked in) when they best fit in any given social context. Yet, I acknowledge that many may not fully accept me to belong to any of the three, but this pulls me closer to identifying with the environment I grew up in and one which influenced the beginnings of this PhD My upbringing has been and still is in Tanzania, and as such, I identify myself as a Tanzanian-Indian person with British-Indian nationality.

I was fortunate and privileged to pursue my schooling in Tanzania, Kenya, India, and England. I understand this may influence how my participants and readers perceive me, in conjunction with my Indian ethnicity and female gender. However, my insider-outsider understanding is something I have learnt from an early age, given my Tanzanian-Indian heritage. It is still something I continue to learn from, as many who live in the understated beauty of the rich diversity of cultures in Tanzania can attest to. My learnings from a young age will allow me to acknowledge the insider-outsider experiences during this study while enabling me to understand better how my bias may influence this research and its outcomes.

2.2) Who is the Audience?

I had to begin this journey by questioning who the audience is for this research. Here, I refer *"to the fact that African scholarly production is oriented neither towards the local peers nor to one's own society, but towards the overseas public"* (Keim, 2008, p.32).

I write for a Western academic audience that will assess the rigour of my thesis, hoping that they, too, acknowledge the aforementioned philosophical standing. However, I also write for Tanzania as it is the views of my participants that I am voicing on how SIMs can be mitigated and how SIMs overlap (if any) Western SGMs for implications of a possible MRA – ultimately, I aspire that it is their voices that shape a potential policy dialogue in Tanzania.

Although I know my audiences, I still face the challenge of which audience I treat as the insider in my writing, given the cultural nuances that must be acknowledged. Here, I realised that I write as a lone researcher for nobody and everybody. It is my place to write for an audience by assuming that nothing is known by anyone reading: everyone is the outsider to the presentation of this research.

2.3) Poaching as a Crime

As I proposed my thesis, I feared that many who subscribe to criminological decolonisation would see this research as adding to imperialism rather than a counter-colonial endeavour. The main questions are: should the colonial-established poaching crime still be seen as a crime (Ch.2)? Should a Western crime strategy be used in Tanzania? The MRA answered the latter by proposing a ground-up, locally tailored, and an unimposing approach (Ch.4).

Therefore, in answering the former – I perceive elephant *poaching* to be rooted in the mass slaughter of elephants during the commodification of ivory (Ch.2). Like the initial contributions to climate change, the near-extinction of elephants was also caused by the West's and the East's demand, and those who were guilty were not labelled *poachers*. Regardless of a debate on the role they did or did not play, all must bear the consequential burden.

As such, I believe that ivory poaching, despite being a colonial crime, should remain a crime as it feeds a commercial motive, threatens a heritage and emotionally intelligent species, and treating it as a crime does not oppress local use of ivory (Ch.2). Equally, I believe that it cannot be that *professional hunters* who can afford the cost of permits, and who are often not Tanzanian in their culture, should be allowed to *hunt,* but then the same process be deemed illegal *poaching* as a form of oppression of the local populations.

In concluding my reflections, I have intended this research to be culturally sensitive to ensure that it applies to the study's participants (Smith, 1988). To do so, I present a candid account where possible to ensure transparency, reflexivity, and rigour, especially in support of the methodological framework and the discussions lending to potential policy dialogue.

3) Professional Hunters' Guilt Neutralisation

"…there's a saying that if it pays, it stays. Wildlife needs to pay for its own protection." OSP

Data from OSPs who had previously participated in recreation hunting evidenced neutralisation techniques (Table 60) to justify their legal but frowned upon actions. The techniques are colonial rooted, akin to hunters-turned-conservationists when noticing a decline in animal populations and a threat to their profession (Ch.2). As expected, these vary drastically from the poacher's techniques and primarily rely on ethical conduct, and their actions pay for conservation.

Table 60: *Guilt neutralisation techniques used by recreational hunters*

Technique	**Supporting quote**
Ethically conducted	*"Now 90 per cent of the hunting regulations are actually ethically based… whatever we shoot we write down on the permit…you don't shoot at night…you have to be 100 meters away from the vehicle; you don't shoot near the watering hole, etcetera excreta. But those are all ethically based."*
Low impact	*"So typically, you're also taking animals that are out of the breeding herd…so, your impact on the species is, is, almost zero."*
It's a sport	*"…people don't like to call it sport, but it's a sport because you're…putting yourself against an adversary or whatever, so it's a sport."*
Plenty of animals	*"And the wildlife numbers are very large…they would probably be that large whether you had the hunting or not."*
Hunting pays for conservation	*"…that* [hunting block] *is now protected against cattle and logging and mining and building and farming?* [L: Yes]. *Am I protecting the habitat? Yes, I am because I want to hunt it."*

4) Gun Storage in the Bush

Similar to storing ivory in the bush (Ch.9), 14 respondents (except PPs) imply that guns may also be stored in the bush:

Table 61: *Storage of guns in the bush*

Gun stash in bush	No. of mentions	Supporting quote
Culverts	1 APP	*"The ones that I have found that have been hidden in the bush are the ones that are hidden in the culvert…. They put them down there because they know people will not pass there."* APP
Bury general	1 APP	*"Others are the ones that are buried underground…* [and] *can only be found if you have information, that they are there to investigate."* APP
Hidden general	3 PPP 3 RP	*"The* [guns] *that are hidden in the bush are the ones that are stolen."* PPP
		"In the bush! Because at home, at any time, the guards can come [and find the guns]*."* PPP
		"During the past, they used to hide their weapons in the bush completely. So, after poaching, they would just go with their teeth only, so that when we would arrest them, we would only catch them with the ivory alone and no visible weapon… They'd show us where they hide the weapons after interrogation." RP
In caves or rocks	2 PPP	*"…because of that, people look for, maybe, caves there in the bush* [to put the gun]*."* PPP
Buried (plastic sheets; nylon; oil treatment)	2 PPP	*"… they put it in plastic sheets, dig a hole and put it down there… until he plans, now is when he passes by there and excavates it."* PPP
		"[L: Are you not afraid that the gun will rust?]. Ehhe, it is applied with oil, and then it is put in nylon. Ehhe, and then it's put down [dug underground]." PPP
Thicket/ Trees in plastic bags	1 PPP	*"Ahah, no, you have plastic bags. [L: Yeah, and then do they dig it underground or?]. Ahah, they don't bury it down. It gets spoilt. There are those bushes, those thickets of trees, they put them there."* PPP
Baobab trees Ruaha Region	1 RP	*"After asking them* [about guns]*, they took us there. They had hidden it in a baobab tree. Eh, in its holes. [L: And the gun was whole? Or in parts?]. No, it was a .458, whole, just wrapped in a plastic bag and put inside."* RP

The data in Table 61 inform that *fundis* may decide to store the firearms to limit their risks: if they are arrested, there is a possibility of a lower sentence compared to arrest in possession of firearm(s). Additionally, one PPP offers that the illegal guns are stored in the bush to similarly reduce the risks, while registered guns are taken home:

> *"… but this may depend on if it's stolen or not. If not, then if the search happens, they* [the gun owner] *need to show where their registered gun is."*
> PPPs

Due to the vastness of the PAs, the *fundi* has many options to conceal and/or hide firearms, possibly hiding both ivory and guns together. Another parallel between guns and ivory is the teams' reliance on natural markers to remember the gun storage location (Ch.9).

5) Gun Storage Outside of the Bush

> *"They had it* [ivory] *stored underground far away, together with their weapons." RP*

Like storage within PAs, guns and ivory may be stashed together in a similar manner. However, unlike ivory, the firearm must always be covered and treated with oil to prevent damage, as shown in Table 62.

Table 62: *Storage of guns in villages and surrounding areas*

Gun storage in village	**No. of mentions**	**Supporting quote**
At home	2 PP 1 APP 1 OSP	*"It* [a registered gun] *must go home, so if the time comes when it is needed during searches, it shows that it is at home…."* PPP
Under firewood	1 PP	*"I have caught guns that they hid inside the home. Even bullets… so outside there in the burner there outside they had dug it under the firewood. For example, they dig here, and they put the firewood on top."* PP
Latrine	1 RP	*"We have already had the experience of finding one hidden in the toilets – [L: Flush one?]. No, you know the toilets of the village… the squat ones and the hole. So, what they do is they tie it with a ball, and they put it down there…. They put it in those bags so that it is secure."* RP
Cattle pen	1 RP	*"… they will go and dig it down in the cattle pens…."*RP
Bury general	4 RP 1 APP 1 OSP 1 PP	*"There are others caught with weapons buried underground…. They had buried their weapons underground. The teeth were buried elsewhere."* RP
Bury on farmland	3 PP 1 OSP 1 RP 1 PPP	*"As in there completely in the field where there are hardly any people, they go dig there and plant some maize on top. There was this one gun, we went there, and we saw the maize has grown, but it turned out there was a gun under there- [L: and they remember fully where…?]. See, they know! And that maize they have planted it with a purpose only! To show them where it is."* OSP
Stored in bags, plastic sheets	2 RP 1 OSP	*"…this gun they hide it whole. As in, they just fold it into a sack, like this one [points to cement bag]. And then they just insert some paper… that water cannot damage – [L: Like plastic sheets?]. Yeah, of plastic, they wrap it*

		around like this and then put it in another bag, as in it stays secure completely. Even if the rain hits, no water enters it." OSP
Oil treatment	1 PPP	*[L: Are you not afraid that the gun will rust?] Ehhe, it is applied with oil, and then it is put in nylon…."* PPP
In beehives	1 PPP	*"…or there in the farmland, a person could hang the hive of bees, and he could put it in there, something that a person that is just passing by cannot easily know."* PPP
Corn husks	1 PP	*"At home. In the peels of corn…. It depends on them and the house… you cannot know where until they tell you."* PP
In parts divided amongst team members	1 PP 1 RP	*"They share them!...the gun has many parts, so one* [person] *is given the magazine, the other is told you stay with the bullets, the other is told you, you will stay with the firing pins and the other with the barrel… so that when they have to go do the job, you cannot go do the job without me, and… without him. So that when we go do the job, we all have to go and then merge that one gun…."* PP
Football pitch	1 RP	*"We caught him, and we asked him, where is your rifle? He told us… in a football pitch, where I have dug a hole and hid it in the ground."* RP

Unlike ivory, the guns require additional care to avoid damage, can be disassembled or may be legally owned. Disassembled storage makes the firearms harder to trace and confiscate and suggests distrust between team members (Appendix 3- Other Harms).

Understanding the process of gun storage may allow enforcement to detect guns and the ivory if stored together, especially as guns may be easier to detect using metal detectors, unmanned aerial vehicles and ground penetrating radar. Therefore, the data shared here could be crucial for market disruption (Ch.12).

6) Destination and Use of Tanzanian Elephant Ivory as Informed by This Study

South and Wyatt (2011) found that illicit wildlife is smuggled on trains, planes, and boats through "paid corridors" or where bribes can be made. Huigen (2021) found the same for USGs in South Africa and this study for Tanzanian SIMs:

> *"He's* [final fence] *the one who knows exactly how to manoeuvre, how to corrupt…customs official, or the port officials…."* OSP

Table 63 shares the participants' responses on where the ivory is disposed of. The data inform on disposal in neighbouring countries and other African nations. Although, in some instances, these locations are used in transit (most favourably through Burundi and Kenya, and possibly Rwanda and Uganda) for inter-continental delivery to China, the Middle East, India, Pakistan, and France. For disguise and transportation, see Section 10.2.1 and 10.2.2, respectively.

Table 63: *Destination of stolen Tanzanian ivory*

Ivory destination	No. of mentions	Supporting quote
China	16 RP 8 OSP 6 PPs 4 PPP 3 APP	*"Uh, so many times we used to know that these things are taken to China, and we have seen also a lot of cases uh, including China people [sic] are caught with the ivory. And not only that, but we used to hear… that China has a big illegal market of ivory."* PPP
Burundi	6 RP 4 PPP 1 APP 1 OSP	*"Burundi is very easy to transport contraband because of the control there is very low. Then, because of the political instabilities, the government itself seems not to care about the [L: ivory?], yes. So, people have now started to, to traffic."* OSP
Kenya	4 PP 2 RP 1 PPP	*"It can go until Kenya… It's because Serengeti is until Kenya. Now, Tarime is the border. And Serengeti is till Tarime."* PPP
Rwanda	2 PPP 2 OSP 1 PP	*"If they say that they use the airport of Rwanda, then the chance of arrest is low because they don't understand it… for them, they don't have* [elephants]*."* PP
Uganda	2 PP 1 OSP 1 RP	*"I remember that year when I was taking it* [the tusks] *to Kampala when we reached Kampala, and we stayed in a hotel."* PPP
Congo	3 RP 1 OSP	*"They are going to Sudan or Congo… where there are maybe wars."* OSP
Somalia	1 RP 1 PP 1 OSP	*"But many poachers are those Somali. The Somalis are the big poachers dealing with the issues of buying ivory…."* RP
Zimbabwe	2 PP 1 OSP	*"A person from Zimbabwe comes to take it to this country knowing he will transport them to China from Zimbabwe."* RP
Sudan	2 RP 1 OSP	*"…big market… the one that goes to Rwanda, or they are going to Sudan"* PP
Middle East	2 PP 1 RP	*"…this business… is enabled by the Arab countries…wealthy businessmen…once he gets the load from the poachers, he travels to these countries as business trips, like Dubai, but in reality, he is taking those trophies. Eh, that's how it is."* RP
Taiwan	2 OSP	*"… there, Taiwan, they transport it to China."* PP
Malawi	2 OSP	*"…ivory would go into containers from Dar-Malawi…."* OSP
South-East Asia	1 RP 1 PP	*"…the final buyers… in Southeast Asia"* OSP

India	1 PPP	*"You find they take it a lot…*[to] *India a bit, but even more than India is China."* PP
Pakistan	1 PPP	*"Pakistan…these are the places that I know of."* PPP
Vietnam	1 PPP	*"…they would receive an order from Vietnam,"* OSP
France		*"Pakistan, France, China, these are the places that I know of."* PPP

Participants were also asked if they knew the end-use of ivory. Their responses include: ornaments, jewellery, TAM, and knife handles. Unexpected responses included: used in electronics, male enhancement (this may be due to the overlap between the trade in elephant ivory and rhino horn). The unexpected responses are not corroborated by existing literature, although the use of ivory for memory in TAM is plausible but not confirmed. The data suggest a limited understanding of the international demand for ivory in this study's sample.

Table 64: *Participants' responses on the end-use of ivory*

End-use of ivory	No. of mentions	Supporting quote
TCM	3 PPP 1 OSP 2 RP	*"Even when I asked him, he* [the Asian buyer] *told me, for example, ivory, that it can also be used in memory, like memory. It creates, it makes memory."* PPP
Ornamental	4 RP 1 OSP	*"… if you want it whole, then it is for you to use as an ornamental* [sic]*"* OSP
Jewellery	1 PPP 1 RP	*"They make some necklaces that, according to their beliefs, a person who wears them must be rich, made from these very elephant tusks"* PPP
Powder for wood products	1 PPP	*"I don't have much knowledge, but that explanation that I was given is that… they grind it into powder… once it is heated together, it is used as wood...*[to] *make cupboards or cups sold to the senators [sic] at very big prices! An ordinary person could not buy those things."* PPP
Dagger handle	1 RP	*"Some information from various books, it shows… those daggers"* RP
Electronics	1 OSP	*"Ivory, for the Chinese, isn't just for male strength. No. Even these computers, phones and what-and-what they also use it. Eh, it's possible."* OSP

7) Poacher Expenditure of Income from SIMs

> *"You will know if a fellow villager gets money. You will just know him. You will understand that… he has some deals, he got money. So that is how we recognise them."* PPP

APPs and PPPs were asked how they spent the money from a successful sale of illegal ivory. It was essential to consider this factor as it may inform the underlying motives shared in Chapter 7, with implications for market disruption (Ch.12). Expectedly, their responses overlap the data in Chapter 7, as shown in Table 65, but consider here the difference in responses on how they spent the money as opposed to why they had to poach for money especially as an individual may be tempted to spend on personal vices rather than overcoming the hardships of life that lead them to poach in the first place.

Table 65: *Poacher expenditure of income from SIMs*

Expenditure	**No. of mentions**	**Supporting quote**
Cattle	4 PPP	*"I bought cows for ploughing…."*
School fees	3 PPP	*"…the rest was used for the children's school fees."*
Drinks	3 PPP	*"It is a must that he has money to pour away…'ah, get this and this, drink of alcohol for the people who drink.' If he arrives at the coffee drinkers, he says: 'drink coffee* [on me]*.' Then you know that he has? He has got something."*
Farming tools	2 PPP	*"And another is ploughs and hoes for cultivation."*
Build house	2 PPP	*"Eh me, I was quick to build, eh, honestly, I built a house when I was poaching, alongside with getting married… together with taking the children to school."*
Goat herds	2 PPP	*"…goats to domesticate and bread into a herd..."*
Medical	1 PPP	*"…these hospitals, the treatment is very expensive…a person gets sick, he takes him to hospital."*
Food	1 PPP	*"Whatever we get* [from the sale]*, we buy food. We take the children to school."*
Motorbike	1 PPP	*"If he has any intelligence for buying, he will buy maybe cows or nowadays the young…yes, he will buy that motorbike."*
Electronics	1 PPP	*"And these phones, to swipe these…[points recording phone]…you will find they have bought a phone… once he has finished the money, he sells that phone he goes to find* [ivory]*. Also, things of the radio."*

The money from the successful sale at the cost of an elephant's life is invested in farming materials and other potential sources of income, such as motorbikes (which alternatively could be used in future poaching expeditions) while sustaining everyday expenses for food, school, and hospital bills. Alternatively, the *income* may be used to construct a permanent home (as opposed to a hut).

The most popular use of the money is to purchase cattle, which are profitable, cumulative, and liquid assets in Tanzania (Dercon, 1998; Urassa, 2013). However, an RP also explained

that cattle ensure easy, reliable, and quick liquidity to instruct a lawyer or pay bail upon arrest. Therefore, aside from the benefits of cattle investments, cattle are a secure plan for potential future arrests.

The data also evidences that some vices are purchased, such as smartphones, and that money may be used to proclaim status by purchasing drinks and gifts for the community. However, once the money has been used, individuals are aware they can poach again, lending to the cycle of poverty and theft (Ch.7):

> *"He says 40 days...as in, the days that pay off for him are numbered to 40. That, he will get caught after that, he will go to court, he will be locked up, he will sit in jail, as in there aren't any big successes for these hunters."* PPP

8) Other Harms Caused by SIMs

> *"And elsewhere, people are being shot by guns in the bush. That is the reason we have now started being afraid."* PPP

Crime creates opportunities for another crime (Felson & Clarke, 1998a; van Dijk, 1994). Although, it can be argued that this is part of the crime itself and not a new opportunity. Chapter 4 presents the other harms caused by SGMs. The equivalent for SIMs is presented here, where the responses are divided into: unintended outcomes; altercations between poachers; and unforeseen. This is, of course, in addition to the other underlying illegal activities within SIMs, such as the sale of illicit firearms, sales tricks and bribery:

> *"Some amongst us do not want to become a criminal again. So, if trouble arises…and our enforcement is no longer trustworthy…*[you will say]*… 'here take this little bit* [bribe]*', and then he leaves it."* PPP

This study found no concrete connection between Tanzanian SIMs and terrorist activities, but that is not to say that convergence does not exist (Ch.4).

6.1) Unintended Outcomes of Purposive Actions

The unintended outcomes of purposive actions (Sutton, 2014b; Sutton, 2010 p.3; Felson & Clarke, 1998) or Merton's (1949) self-fulfilling prophecy are the problematic links to SGMs and SIMs. Firstly, elephants are the direct victims, including the emotional stress on the victim's herd. Secondly is the self-victimisation of poachers through poaching-induced-musth and aggression in lone male elephants, increasing HEC (Figure 17). Thirdly, the resulting HEC may be the direct victimisation of other inhabitants surrounding the PAs. Finally, there is 'cultural victimisation' pertaining to all Tanzanians through the demise of elephant populations, be it from poaching, legal hunting, or self-defence during HEC.

The data also reveal the unintended victimisation through the illicit trade in small firearms, including: legitimate firearms merchants; *honest* markets of weapons In Tanzania; and

increased gun crime (Ndawana, Hove & Ghuliku, 2018, p.70), including that of the poachers through internal conflict resolution.

6.2) Other Crimes In and Out of the Bush

The combined factors of access to firearms and access to the networks of SIMs give rise to the ivory poachers' and traders' ability to diversify their crime portfolios. The data shared here is divided into crimes against other animals (Table 66) and crimes outside the PAs (Table 67).

Table 66: Crimes against other animals

Crimes against other animals	**No. of mentions**	**Supporting quotes**
Bushmeat during ivory poaching	5 PPP 2 PP 6 RP	*"…vegetables to start if you haven't reached there* [in the park] *because once they do, they can hunt and eat the animals there."* PPP
Poison vultures	1 OSP	*"That's why they poison everything, so they poison all the vultures so the vultures can't give them away."* OSP
Rhino–elephant link	7 RP 5 PPP 2 PP	*"A shooter for an elephant can also shoot a rhino, so it's one and the same, completely."* RP
Lion/leopard skin/claw	4 RP 1 PPP 1 PP	*"…there were others whose business was also leopards…."* PPP
Do not poach other commercial animals	6 RP 2 PP 1 PPP	*"As in, if they jump onto the safari of killing an elephant, then it is only and solely elephants. Yeah"* PP

During the theft of ivory, the poaching team relies on the available bushmeat for sustenance, leading to their involvement in subsistence poaching. The team may also kill vultures to minimise their risks of detection. In addition, vultures may also be the unintended victims of SIMs through their unknowing consumption of poisoned elephant carcasses (Ch.9). Although not mentioned in Table 66, it is also possible that the team will hunt other animals needed to make oils and medication needed for poaching, or they may have been ordered to do so by the manufactures at a pre-negotiated price, or a lower price of purchase for the team (Ch.8).

Of note is that poachers may diversify their portfolio to include other illegal wildlife or animal parts, relying on their access to small arms and a direct link to a potential buyer. Although the data only evidence this link at the shooter's level, it can be confidently speculated that this is enabled by the urban fence's diversification to the demands of other international clientele.

On the other hand, Table 66 robustly informs that elephant poachers do not trade in other illegal wildlife, except for a possible link to rhino horns, which are an infrequent incident in

Tanzania due to the limited number of rhinos. Nevertheless, crimes against elephants and other animals could hinder tourism if the numbers continue to decline and limit conservation investments due to a lack of positive outcomes.

Aside from the harm caused inside the PAs, the data evidence a connection between SIMs and other crimes outside the bush, as shown in Table 67.

Table 67: *Other crimes committed outside of the bush*

Other crimes	No. of mentions	Supporting quotes
Prostitution	1 PPP	*"…they bring you women of all types. Every day, they change the women for you. Hmm, but they pay, not you…. In the morning, he takes her, and then he comes back with a Ugandan and with another and so like that."* PPP
Cattle theft	1 OSP 1 PPP 1 RP	*"Those that engage in elephant…if he found another poacher that could influence them, maybe go and steal livestock…because they have a gun, so they could do anything really."* RP
Other theft	2 RP	*"Once they have sold it to those bosses who do the export, and they still haven't been arrested…they also involve themselves in other crimes like stealing from shops, breaking into shops, stealing cars…. So, they commit crimes in all areas. That's how they surviv*e." RP
Poacher–ranger conflict	2 OSP 4 RP 1 PP	*"And the problem is also those game scouts are living in that same village. They're worried about getting their throat cut while they're asleep in the village…. You know, if he's gonna go to jail for 30 years, will he think twice about cutting a guy's throat?"* OSP

Felson and Clarke (1998) suggest that money from crime may lead to other crimes, such as the purchase of drugs and sex. This study did not find a link to drugs at the rural level, but urban operators may use drugs:

> *"…these cases of drugs, the majority of them are people that have money….*
> *The big difference is that drugs are in towns, not in the villages…."* PP

The lack of drug-induced motive for ivory theft presents one of the significant differences between USGs (Western and South African for comparison (Hugine, 2021; Sutton, 1998)) and Tanzanian SIMs.

On the other hand, the link between SIMs and sex workers through fences is robustly evidenced and requires future research, as fences may be involved in a convergence of crimes, including sex markets (Alden & Harvey, 2021; Anagnostou, 2021; Austin, 2019). The existing literature evidence that sex workers are paid to pretend to be legitimate professional hunting clients who use corrupted permits to kill (with assistance from a professional hunter) and transport the ivory out of Tanzania (Austin, 2019). Moreover, Alden and Harvey (2021)

detail that the TCOs in Tanzania operate in two broad categories: human trafficking and prostitution directed towards the Chinese community; and environmental crime, including SIMs. The participant's experience in Table 67 details their interactions with a Chinese fence, supporting Alden and Harvey's (2021) findings. Alternatively, it could be equally possible that the fence interacted with escorts in Tanzania and neighbouring countries and could afford their payment. However, the existing literature and the participant's experience suggest there is room for speculation and a need to further explore this crime convergence through a longer-term MRA.

Although prostitution links to an urban environment, two RPs have insight into other rural crimes, including cattle theft, where such stolen *goods* may be sold to their colleagues or network in SIMs (see also Emanuel & Ndimbwa, 2013, p.523). However, this convergence also warrants further research and evidence.

Finally, as poachers and rangers frequent the same villages, violent altercations may occur outside the PAs, provoked by either party, potentially through impaired judgment in social situations with alcohol (Felson & Clarke, 1998). The same applies to the altercations between co-offenders who may meet and socialise in the same village or communal areas such as coffee houses or bars (Ch.11).

6.3) Altercations Between the Operators in SIMs

In many instances where the operators of SIMs have to resolve altercations, it may lead to violence, resulting in more crime, as found for SMGs, and speculated for SIMs (Ch.4; Reuter, 1985, 1990; Venkatesh, 2006; Rosenfeld, 2009). This data clarifies the speculation that theft between poachers occurs and that altercations can escalate to assassination threats and accusations of murder, as evidenced in Table 68.

Table 68: Internal dispute and violence

Internal dispute	No. of mentions	Supporting quotes
In the Bush		
Murder accusations-poaching team	1 PPP	*"*[The elephants] *have killed many people. So now, if you return here, people don't believe that an elephant killed their person. Therefore, they try and make a case for you. They assume that you took them, and you went to kill them."*
Murder threats-*fundi-fence*	1 PPP	*"…that boss, he has the reputation of killing people in the bush.* [He says] *'if any person brings his arrogance, I'm killing him.' So, I had to shoot him* [the elephant]. *That elephant, after hitting him with one bullet, he turned around and looked at me! As in, you feel it is human...he crouched down, and he fell."*
Out of the Bush		
Internal theft-poaching teams	2 PPP 2 RPs	*"…he knows when you are coming, he comes with an escort* [sic] *on the road…he will hide himself, so when he comes behind, he will see you guys…when you reach the place to hide* [the tusks]. *Therefore, he comes and pulls a little bit, and…he steals…if I become aware of this, it is already a war."* PPP
Internal dispute-rural buyers	1 PPP	*"Eh! If they meet each other in town, he says that fundi is mine!... I'm the one that gave you a gun. That one is mine. This outcome happens many times."*
Internal dispute-rural buyers and *fundi*	1 PPP	*"He goes to one boss, and he takes money, he goes to this one, and he takes money…. Now, each person…says 'my fundi has entered'…. When the day arrives that they meet, that's when the disorder starts [laughs]."*

The risks in the bush during the theft of ivory are high due to the amount of time spent in a dangerous location could cause both other harm and other crimes (Felson & Clarke, 1998). One missed shot, and a counter-attack from an elephant could result in the demise of a team member. The level of distrust could result in suspicion from the associate's family. When questioned further, participants explained that the body might be buried in PAs due to the distance and lack of transportation. However, if possible, the team may transport the body back to the family.

Additionally, one *fundi* shares his experience of being threatened when they refused to shoot an elephant, evidencing violent resolution to disputes in the bush. This may explain family members' distrust upon hearing an elephant killed their kin while also suggesting a trickle-down management style using violence from urban fences to rural fences and team managers in the bush.

Outside the PAs, individuals may dispute the theft of stashed ivory akin to SGMs (Ch.4). A colleague may organise for the shooter to be followed to the storage location from where the tusks may be taken to another storage location. This results in violent resolutions. Moreover, altercations may occur between rural fences over a sought-after shooter or between the shooter and the buyer. In either case, as SIMs operate with illicit firearms, the outcome is potentially the loss of human lives and the confirmed loss of elephant lives.

6.4) Unforeseen Harms

As suggested in Chapter 2, it is possible that hunting results in adultery. This was unexpectedly evidenced for contemporary SIMs as one PPP voiced:

> *"…we say if the husband is not around, your wife takes another man as you know women have bad habits…I don't know what will follow it. It will be that I have killed my family and home."* PPP

This connection between old and new evidence highlights the importance of a historical market review.

All individuals who go to prison are expected to experience family disruption. However, in SIMs, harm is additionally induced by the absence of the husband and/or father during poaching expeditions, which may or may not be followed by arrest. This unexpected link between previous hunting and current poaching concludes the conversation on the peripheral topic of other harms.

9) Participants' Responses to International Bans on Ivory

Table 69: *Participants' responses to the international ban on ivory sales*

International bans	No. of mentions	Supporting quote
The ban is helping	2 PPP 1 APP 2 OSP 3 PP 11 RP	*"But the big market in China has now been banned…the business of ivory has really reduced. What remains is very little, just those of the rat ways, small-small sales, not how it used to be."* PP
Other countries need to adopt a ban	1 OSP 1 PP 2 RP	*"But you know the ban is only on the, the mainland China. In Hong Kong…and Vietnam, the market is very much still legal. Um, I'm sure you are aware of that?"* OSP
		"I think that for it to be effective, if…they can abolish this trophy business…the same measures should then be taken by [other countries]*…then it will disable the market…. They will stop because there will be no market and no buyers."* RP
The ban is increasing the price	1 APP 1 RP	*"One of the big factors is price…and now the prices are increasing due to the strictness level…. So, I say yes, the laws on bans are helping, but they need to increase the protection…the law itself will only help you arrest someone and convict…but you still need more protection."* APP

The views on international bans are self-explanatory. However, of note are the limited responses from the PPP and APP sample groups.

Appendix 4: Field Realties-Ethical Considerations and Data Quality on Paper and in Reality

This appendix addresses the criticism of qualitative data shared in Chapter 5 (see also Hinds, Scandrett-Hibden & McAulay, 1990; Hogston, 1995; Mays & Pope, 1995) through data quality. However, these can only be explored by first presenting the ethical considerations that then define what could and could not be done to accommodate data quality and rigour within the realities of fieldwork.

1.0 Ethical Considerations

Participants are often approached to *"undergo, procedures that they have not actively sought out or requested",* from which they may not benefit indirectly (Guillemin & Gillam, 2004, p.271) or directly (Bain & Payne, 2015; Gatenby & Humphries, 2000; Reason & Bradbury, 2001; Wadsworth, 2005, 2011). Ethical considerations can ensure some benefit in safety, an aspect of the highest importance to this study as identification could lead to apprehension or internal repercussions – one of the biggest challenges for this study and other criminological field research (Arrigo & Williams 2006, p.165)

Although, it must be acknowledged that preconceived ethical guidance provided by an organisation may not cater for all adverse consequences of field research (Bulmer, 1982; Guillemin & Gillam, 2004). Reconsiderations now accommodate learning from field experiences through reflexivity, as shared here, rather than disqualifying them (Guillemin & Gillam, 2004). In addition, I firmly believe that researchers should be well-versed in their research areas' cultures or recruit local assistance to inform them through data collection to overcome the often subtle and generalised procedural guidelines.

The ethical considerations of this research were developed based on Nottingham Trent University's College Research Degrees Committee (CRDC) reporting to the University Research Degrees Committee (URDC) and the Tanzanian Commission for Science and Technology (COSTECH) (Appendix 2). The clearance from the CRDC and COSTECH took over six months each (Ch.6). This section highlights the ethical considerations of this study and its field realities, as experienced by the researcher, concerning the red-letter dilemmas set out by CRDC and COSTECH.

Based on my past experiences, I am aware of the tight-knit circle of Tanzanian enforcement and tourism and conservation in general. The complexities of these matters demanded much time and thought, especially in sharing direct quotes from the participants. A small detail could easily make a participant known to another. As such, the main question was how much data (locations, circumstances of apprehension, physical body scars) should be deleted and changed for participant safety without impacting the study's outcomes.

1.1 Confidentiality and Anonymity Through Pseudonymisation

The first step was pseudonymisation, preventing the sharing and recording of the participant's names and instead using assigned codes. However, this was unavoidable when participants were known to me or my network. Participants were also advised to refrain from naming other individuals during the interview. This information was verbally read to the participants from the informed consent shared in Appendix 2.

If one were to criticise this approach's implications on data analysis, it would be that it blurs the participants' perception of the person they refer to. For instance, participants referred to a person as *"our friend"* but had negative sentiments towards them. This criticism is easily overcome when cultural nuances are understood. Secondly, some presume it is culturally unacceptable not to share names. This was overcome by always offering my name and clearly explaining why they should remain anonymous. This was well-received by all sample groups.

Within the field realities of anonymity, some participants purposefully mentioned names to test the researcher or accidentally mentioned names, at which point they would turn to the researcher for clarification. I would record the time stamp and ensure its deletion. The names have been edited from the audio and written files. A further complication was encountered when interviewing participants involved in high-profile cases covered by the media and known to many. Even in these situations, information leading to my participants' identification was omitted. The final major challenge of pseudonymisation was that some participants wanted their contributions to this study acknowledged, claiming not to fear any of the assumed repercussions. This left me in a moral dilemma to either ignore their request for safety purposes or adhere to their proposals in the sincerest form of gratitude for their contributions. It was decided that, where possible, some participants would be given personified code names such as Mr K. and Mr S.

Participants' confidentiality and security were also informed through the verbally communicated *Worded Protocol for Interviewer* (Appendix 2) to prevent all exposure of other incriminating information previously committed or in planning. This prevented placing my field and academic support team and myself under obligation to report to authorities. Through the fieldwork, I noted that no participant subjected themselves to sharing other incriminating information.

1.2 Data Security and Retention

It was initially proposed that the collected data be saved as audio recordings on digital tape recorders. Transcribed hard copies and tapes would be locked in a safe in Tanzania, so I would not travel with hard copies. Electronic documents would be emailed to the Director of Studies (DoS) via a Virtual Private Network (VPN), and that soft copies of audio and written files would be saved on the University's *StorSimple* space for protection, usually not available to students but exceptionally made available for this research. However, the reality of data storage was

different to what was proposed. Instead, the audio was collected on two smartphones and a laptop. No interviews were transcribed during data collection due to the priority of saving battery, especially when charging facilities were not available. Therefore, there were no hard copies to retain in the safe in Tanzania or email to the DoS. Moreover, the previously promised option of *StorSimple* storage was no longer available due to a change in the University's management.

Despite these changes and shortfalls, the data was expensive, challenging to collect and potentially sensitive. Therefore, I had to adapt to the situation outside of what was planned on the ethics paper. I consulted with a personal contact an IT professional, and between us, a threat model was developed using the resources available to me.

The interviews were already on multiple devices, offering satisfactory protection against equipment failure, data corruption and other small-scale incidents. In addition, I put copies of edited recordings (addressing the time stamps of mentioned names) onto Google Drive to ensure data safety even in the extreme event of a natural disaster where all devices may be damaged simultaneously.

Finally, I had to consider, albeit a minimal risk, of deliberate and unauthorised access by third parties interested in the data. This concern was brought on by the killing of Mr Wayne Lotter during the beginning of my data collection, who was investigating the Tanzanian ivory trade (Tremblay, 2017). I ensured that all the devices had industry-leading software, namely, *Bitdefender Total Security* and *IronKey* encryption for external hardware. Although *Google Drive* allowed a safe backup when the internet was an option, it was still a vulnerability. For this, I chose robust passwords that frequently changed when I had access to the internet and introduced two-factor authentication.

Thereafter, editing and transcribing audio files into Word documents allowed the elimination of information for participant anonymity to the best of my capabilities. It was decided from the onset, and participants were informed that the anonymised data would be securely retained by myself. In addition, they would be unable to check facts before publication or withdraw their contributions for the reasons shared in Appendix 4.

1.3 Informed Consent

Informed consent allows for a shift from *subject* to *participant,* enabling participants to make the research their own (Guillemin & Gillam, 2004, p.271). The informed consent for this research (Appendix 1) would be verbally communicated to cater for all reading abilities and avoid participants' discomfort in addressing concerns with written communication, which presented challenges in field realities. Before discussing the challenges, it is essential to acknowledge that the participants are highly successful in their roles. They are constantly alert of any subterfuge and have a deep sense of self-preservation and judgement of persons and immediate situations such as participating in interviews.

During data collection, most participants preferred to have all the information provided before the recording started. Some English-speaking participants requested to read the documents before verbally consenting. Thereafter, many authorised their consent by merely stating *“Okay, start”* during the recording instead of providing explicit consent. I tried to overcome these moments by asking once the recording started: *“Are you okay for me to start recording?”*, *“Are you ready to participate and speak with the recording?"* or *“Do you have any questions before we begin?”*

Another challenge was the interviews conducted in prison, where recording devices were prohibited. In this case, the prison authorities were provided with the consent information that they conveyed to the participants. There is limited evidence of consent, but it is essential to acknowledge that the participants freely decided to participate and to what extent they were willing to share information or not, as in most cases.

It is acknowledged that the informed consent for this study raises some important questions on the boundaries of accepted practices. However, as mentioned, the realities of conducting fieldwork often differ from what can often be preconceived. The processes and challenges of informed consent for this study have been transparently conveyed, and I feel assured in my ethical considerations and practices during data collection.

1.4 Voluntary Participation

Although individuals may provide informed consent, they may not have volunteered to participate in a study. For instance, a manager may have instructed an individual’s participation. On my ethical form, I proposed to request lead rangers to propose the research and allow individuals to participate voluntarily.

The reality of my experience was different as I was instructed to recruit ranger participants myself where I could ensure voluntary participation. Recruiting rangers would not have been easily feasible without Mr S., who has experience as a ranger and was able to direct us to the ranger posts (many of which are hidden) and to rangers with commendable knowledge of SIMs. Moreover, he convinced colleagues of my trustfulness, allowing them to participate voluntarily and, in some instances, introduce me to their informants. I perhaps would not have been so openly welcomed without Mr S.

At the time of writing the ethics form, it was unclear if I would have access to police or prisons. Access was granted during data collection, where I had to reconsider voluntary participation. I was allowed to recruit police officers, ensuring voluntary participation. The prison warden chose prison participants, but when meeting with the researcher, participants voluntarily decided to accept or decline. In conjunction, poachers and other stakeholder participants voluntarily participated in the study or declined.

1.5 Risk of Harm for Participants

The risk of harm considers the physical, mental, and emotional toll of participation. However, not all forms of harm can be considered due to unforeseeable cultural and moral imperatives. Depending on the situation, the researcher has to act and decide, further lending to the importance of transparency and reflexivity, as shared here.

As declared on the ethics form, I was equipped to source medical assistance in the areas I visited through known contacts in the region or direct communication with flying doctors in national parks. Concerning mental health, initially, I stated on the ethics form that I was unaware of psychological support in Tanzania, especially in rural areas. However, during data collection, I was introduced to helpline numbers for psychological distress, which I stored in my field diary.

Relying heavily on my understanding of Tanzania and accepting that my knowledge was primarily based in urban Tanzania, I requested the guidance of as Mr S. and Mr K. I was also fortunate to have a highly appropriate doctoral supervisory team who held considerable experience in conducting their own field research with marginalised groups, nationally and internationally.

Fortunately, during the interviews, the participants and my team suffered no physical harm or distress. It is essential to acknowledge that follow-up after data collection was unfortunately impossible due to the logistics and difficulties in contacting participants as per participant anonymity.

1.6 Risk of Harm for the Researcher

To limit the possibility of being stranded, I visited locations that had potentially confirmed interviews before data collection. This helped establish a logistics plan (and consequently the funds needed in cash), location-specific networks, and mobile phone network availability in those locations. Although the ethics form states that a two-way car radio would also be installed, this was not needed due to the increased availability of mobile networks.

My supervisory team remained in contact through WhatsApp, while my local support network and family communicated via SMS and phone in real-time. Both groups were informed of when I left the accommodation, began an interview, ended an interview, and returned. In this manner, the well-experienced supervisory team was able to equip me with real-time, in-house guidance, and my support network could provide emergency resources (local contacts, funds, directions, fuel delivery).

Interviews with strangers could be prone to violent mood swings or reprisal attacks when participants felt they had inadvertently shared sensitive information, especially since most participants had access to firearms during the interviews (Felbab-Brown, 2014; Nilan, 2002; Lee-Treweek & Linkogle, 2000; Tremblay, 2017).

In response, on the ethics form, a privately hired gatekeeper was proposed to remain nearby during the interviews with headphones to prevent disclosure. Instead, I relied on Mr S., who was on most occasions armed and had a robust network, and Mr K., who has over 25 years of experience in road travel across the entirety of Tanzania and with a plethora of knowledge on the varying cultural nuances throughout rural Tanzania. Both did not wear headphones but remained nearby without encroaching on the interview – unless invited by the participants. No harm was faced by my team or myself.

Other concerns of gender-based safety included travelling and camping with a male team, rural night-time driving (with no streetlights and limited mobile phone network), and highway crime (Eliakunda et al., 2018; Nordfjærna, Jørgensenb & Rundmoa, 2012; Samu, 2020). As I had previously travelled these routes many times, I was able to incorporate safety measures before travelling, and on my own, I was more alert to potential situations. I was fortunate that my team, participants, and myself were not subject to harm.

1.7 Payment to Participants

In Tanzania, it is culturally expected that an economically advantaged person would provide some form of a tip or gift (known as *takrima*) for time and assistance provided by a less economically placed individual. Even if someone does not offer anything upfront, Tanzanian culture does not shy away from directly asking for something.

On my ethics form, I suggested that I would travel and provide juice boxes and biscuits before an interview so that participants do not, in essence, feel that they have to *"earn them"* through participation. It should be noted that the gifts were not to entice or convince participation but rather a gesture of gratitude.

In the field, I was advised by my gatekeepers not to mention the gifts and instead simply give them at the end of a meeting, irrespective of participation in the study. However, as the data collection progressed, it became clear that participants preferred that I provide cash at the end of an interview. The cost of adhering to upfront money requests was overwhelming and could not be covered by the budget. Moreover, as meetings took place in rural environments, the juice boxes and biscuits were more of a nuisance for the participant to carry and for me to store in the car. In addition, the boxes often led the participants to request a lift in the car, which was perceived as an unlikely but still a potential risk to participant anonymity and the team and researcher.

Instead, I decided to purchase 300ml whiskey bottles, which were easier for participants to carry and for me to store. I had some concerns with this decision due to the probability of my participants being of Islamic faith. However, this was not an issue as participants who did not consume alcohol were willing to take the whisky to give to other associates or request alternative cash payment or, when possible, mobile money top-up vouchers. It is important to note that the whiskey was presented in gratitude akin to the antiqued gesture at the end of a business meeting.

I covered food and drink costs for city interviews, and some participants were compensated for travel. Alternatively, some participants who were previously known to me covered the bill during the interview.

1.8 Closing Remarks on Ethical Considerations

Reflexivity in relating the experiences of ethical considerations provides truth in the informed consent process, going further than what is written on institutional forms (McGraw, Zvonkovic & Walker, 2000; Guillemin & Gillam, 2004). As transparently discussed here, there have been many hurdles in the reality of this field research when aiming to embody the principles outlined in the ethics forms. This reflexive and transparent account is essential for the readers to independently judge this study's integrity.

Equally transparent and reflexive in the field realities of this research, the following section discusses the steps taken to ensure data quality and rigour in a qualitative inquiry adapted for rural research in Tanzania.

2.0 Data Quality – Field Realities

Lincoln and Guba (1985) highlight dependability, credibility, confirmability, and transferability to ensure rigour in qualitative data. In conjunction, Houghton et al. (2013) suggest prolonged engagement, triangulation, reflexivity, thick descriptions, members checking, peer debriefing and audit trails as insurances for rigour in research. This section aims to highlight the steps taken within these criteria and the implications of real-world research in ensuring the rigour of this qualitative study.

2.1 Credibility

Credibility is concerned with the believability of the research and its results (Lincoln & Guba, 1985; Leininger, 1994). To meet the credibility criteria, a researcher must ensure prolonged engagement, completeness or triangulation, member checking and peer debriefing (Houghton et al., 2013; Lincoln & Guba, 1985).

Firstly, I spent eight months in Tanzania to ensure prolonged engagement, specifically through a researcher’s lens. This is different from prolonged relationships with or observations of participants. Instead, I spent time in the research location to network with sample groups. Secondly, c*ompleteness* or *triangulation* is met through interviews conducted with different sample groups, as is also guided by the MRA, to ensure multiple sources of evidence (including the researcher’s journal logs). As the groups were asked similar questions, it allowed for internal triangulation. However, *Member checking* (allowing participants to review their interview transcripts) was not feasible for this study as all sample groups continuously travel, making it a challenge to (see also Wright et al., 1992, p.150):

- Contact them, especially as no contact details were shared due to anonymity.

- Identify their location to provide them with hard copies and ensure the funds to travel and wait for participant feedback.
- Overcome language and written communication barriers as all interviews were transcribed into English (Ch.6).
- Ensure they can access smart technology to review soft copies or audio files.

Moreover, the benefits of member checking, which are debated (Altheide & Johnson, 1994; Koch, 1994; Mores et al., 2002) were questionable, as the TA (Section 5.3) and ethical considerations (Section 6.1; Appendix 4) ensure that all statements are anonymised, details are changed or omitted, and statements are used under different themes, thereby complicating a participant's contributions to the outcome of this study.

Finally, *peer debriefing* encourages external experts to determine the credibility of a research (Houghton et al., 2013; Lincoln & Guba, 1985; Ryan-Nicholls & Will, 2009) and was not conducted for this study as it is largely debated. The interpretation of the research is robustly dependent on the researcher, accounted for through reflexivity, thereby allowing the reader to judge the credibility (Cutcliffe & McKenna, 2004). Even if peer debriefing is not conducted or readers disagree with the data results, they can, at the very least, follow the study's process through the dependability criterion (Hall & Stevens, 1991; Koch, 1994).

2.2 Dependability

Dependability (or reliability when quantitative) is the potential of the study's data collection and analysis techniques to be used by other researchers and pertains to the audit trail (Houghton et al., 2013, p.201; Lincoln & Guba, 1985; Ryan- Nicholls & Will, 2009). For this research, the audit trail encapsulates the following criteria listed:

- A reflexive account of ethical considerations and data quality as shared in this chapter.
- A reflexive record of gaining access to research in Tanzania (Ch.6; Appendix 2 & 3).
- A reflexive record of participant recruitment (Ch.6).
- A record of transcripts (kept by the researcher and shared as first-hand quotes in the data Ch.7-12).
- A record of interview audio files (kept by the researcher)
- A log of logistics and costs (extensive log- available upon request).
- A reflexive record of translating and transcribing the data from Swahili to English (Ch.6).
- A record of the chain of analytical events (Richards, 1999) (Ch.6).
- A reflexive log of the researcher's experiences (kept by the researcher and shared as first-hand quotes in Ch.7-14).

2.3 Confirmability

Confirmability pertains to data neutrality, or the impact of a researcher's values on the outcome of a study, thereby relating to reflexivity and questioning what is happening while researching (Bryman & Bell, 2016; Gadamer, 1976; Houghton et al., 2013; Jasper, 2005; Koch, 1994; Koch & Harrington, 1998; Lather, 1991; Lincoln & Guba, 1985; Rainbow & Sullivan, 1987).

Reflexivity goes beyond an audit trail to exploring real-world realities and critical reflections that allow the researcher's and the participant's views and experiences to be truthfully represented (Becker, 1967). However, as aforementioned, reflexivity is criticised as it cannot be falsified, and there is no agreed-upon method of validation (Denzin, 1996; Popper, 1935, 1972). Gadamer (1976) suggests writing a reflexive account and leaving the decision to judge the believability of the words to the reader, as done by this study.

2.4 Transferability

Transferability depends on thick descriptions to allow the reader to judge the usability of a particular study and its findings in the context of another similar study (Lincoln & Guba, 1985; Leininger, 1994). This includes cultural clarity in which the initial study was adopted, dependent on the researcher's reflexivity (Koch, 1994). However, a note of caution of analytical generalisation is presented by the feminist, post-modern and decolonised stance (Dawson, 2009; Gannon & Davies, 2007; Lincoln & Guba, 1985; Smith, 1988; Yin, 2013). This study presents thick descriptions through research reflexivity, anonymised raw data presented as quotes and the logs discussed under 'Dependability' (Houghton et al., 2012).

Tanzania's diverse informal setting could overlap with surrounding countries in the Greater Horn. Therefore, the interpretational outcomes of this study could assist in disrupting regional SIMs through the MRA; and guide other illicit wildlife markets in the region. This is, of course, with a note of caution on the limitations of the 'transplant model', leaving the reader to conclude their own judgment on analytical generalisation and, for that matter, the authenticity and validity of this research.

Concluding Ethical Considerations and Data Quality

Section 1.1 presented the ethical considerations of this study to ensure participant, research team and researcher safety, which had implications on how data quality could be ensured. The dependability, credibility, confirmability, and transferability, as guided by Lincoln and Guba (1985) and Houghton et al. (2012), are presented thereafter while ensuring that ethical considerations remain intact. Both sections present a reflexive and transparent account of the field realities of meeting or being unable to meet the ethical and data quality considerations, allowing the reader to judge the validity of this study.

Appendix 5: Biography and Temboiworry

Laxmi Aggarwal's PhD research focuses on the illegal ivory markets in Tanzania because it is already too late for the elephant populations when ivory reaches the international markets. She founded Temboiworry, a for-profit organisation born on the backbone of the PhD, committed to using local data for evidence-based policy dialogues and crime strategies for wildlife conservation. She has a BSc. in environmental science from The University of Nottingham, where she researched the impact of global warming on soil carbon storage in arctic and tundra sites in Sweden. She later received a MA. in Environmental Law from the School of Oriental and African Studies (SOAS). Her thesis focused on the complexities of the functioning of Environmental Impact Assessments under the frameworks of developing countries - with a specific focus on East Africa. Her work experience includes sustainable agriculture of cash crops, grass-roots approaches, public engagement, grant proposals, legal market research and marketing, and renewable energy with a tailored focus on small-hydropower and impact investing projects in East Africa. Her experiences span diverse locations, including the UK, Kenya, Tanzania, Nicaragua, China, and India.

Other Publications

Esser, L. and Aggarwal, L. (2013). 1.1.1 Burundi. In H., Liu, D., Masera and L., Esser, L., (Eds). *World Small Hydropower Development Report 2013,* pp. 18-20. United Nations Industrial Development Organization; International Center on Small Hydro Power. Available at: www.smallhydroworld.org.

Esser, L. and Aggarwal, L. (2013). 1.1.8 Réunion. In H., Liu, D., Masera and L., Esser, L., (Eds). *World Small Hydropower Development Report 2013,* pp. 41-42. United Nations Industrial Development Organization; International Center on Small Hydro Power. Available at: www.smallhydroworld.org.

Esser, L. and Aggarwal, L. (2013). 1.1.9 Rwanda. In H., Liu, D., Masera and L., Esser, L., (Eds). *World Small Hydropower Development Report 2013,* pp. 43-46. United Nations Industrial Development Organization; International Center on Small Hydro Power. Available at: www.smallhydroworld.org.

Aggarwal, L. (2013). 2.2.5 Honduras. In H., Liu, D., Masera and L., Esser, L., (Eds). *World Small Hydropower Development Report 2013,* pp. 168-169. United Nations Industrial Development Organization; International Center on Small Hydro Power. Available at: www.smallhydroworld.org.

Aggarwal, L. and Esser, L., (2013). 2.3.7 French Guiana. In H., Liu, D., Masera and L., Esser, L., (Eds). *World Small Hydropower Development Report 2013,* pp. 198-200. United Nations Industrial Development Organization; International Center on Small Hydro Power. Available at: www.smallhydroworld.org.

Aggarwal, L. (2018). Greg L. Warchol. Exploiting the Wilderness: An Analysis of Wildlife Crime. Philadelphia, Pennsylvania: Temple University Press, 2017. 208 pp. Tables. Halftones. Maps. $28.95. Paper. ISBN: 978-1-4399-1367-3. *African Studies Review*, 61 (2), pp. 250-252. doi:10.1017/asr.2018.35.

Executive Summary: Temboiworry

General Information

Business name:

Temboiworry

Owner(s) name:

Laxmi Aggarwal

Personal email address:

laxmiaggarwal329@yahoo.com

1.1 Business Summary:

Temboiworry is an independent data and research centre operating for profit through impact investment projects in East Africa, focusing primarily on wildlife conservation projects.

Temboiworry provides interested parties with locally collected datasets, insight reports, opportunities for innovative impact investment, funds management for impact projects in Tanzania, inter-sector collaboration and events for policy dialogue and conversations on impact.

Temboiworry has strong relations with local and international investors, academic entities, natural resource and wildlife management organisations in Tanzania, and diverse stakeholders in the tourism industry. Temboiworry strives to deliver diversity in researcher-practitioner collaborations.

1.2 Background:

This business plan is born on the backbone of a PhD in Criminology titled *"A Market Reduction Approach (MRA) for the Illegal Ivory Markets in Tanzania",* pursued under Dr Mike Sutton, originator of the Market Reduction Approach for theft and stolen goods markets.

The data collected for the PhD contribute to the beginning of the Temboiworry database, initially qualitatively, to later progress to include quantitative research. Temboiworry will continue to build upon these data through independent field research and collaboration with diverse stakeholders.

A concern for illegal ivory, and the illicit wildlife trade as a whole, brings together multiple sectors and jurisdictions, with Temboiworry providing a suitable platform for diversity to unify and contribute to projects with positive outcomes.

1.3 Mission and Main Business Aim

To be the leading provider of locally collected, decolonised datasets for East Africa on sustainability, environment, and social concerns. To use the collected data to provide locally tailored policy dialogue and impact investment projects managed by Temboiworry.

1.4 Business Objectives:

1 To create a diverse network of professionals and businesses.
2 To establish professional relations with academic institutions, media, and policy outlets.
3 To have a vigorous literature presence locally and internationally.
4 To host and attend open policy dialogue events.
5 To assist research with an impact in East Africa, including on-ground assistance with gatekeepers for research clearance.
6 To have a significant input of investments into project ideas informed by Temboiworry's research.

1.5 The Four Main Components:

The University of Pennsylvania's Think Tanks & Civil Societies Program 2016 report[1] implies that the metric for an influential think tank includes four main components listed below. This section summarises Temboiworry's ability to meet these components (discussed in more detail in the complete business proposal not presented here but available upon request).

- **Resources**: As this business is born on the backbone of a PhD, the recruitment of renowned scholars and analysts will be accessible through alum affiliation with three renowned universities (Nottingham Trent University, University of Nottingham and the School of Oriental and African Studies). Access to decision-makers and policy leaders will be through the owner's previous work experience in East Africa and the owner's affiliation with the park and tourism authorities. One of the main difficulties will be establishing a permanent team capable of collecting big data and producing timely analysis and publications in light of limited funding at the onset of the realisation of this plan.

- **Output indicators**: Output indicators include: policy proposals generated, publications produced, media appearances, and staff with accolades and nominations to advisory

[1] McGann, J. G., "2016 Global Go to Think Tank Index Report" (2017). TTCSP Global Go to Think Tank Index Reports. 12.

boards/government posts. A build-up of the data collected will give multiple options for publication, leading to policy proposals and advisory documents on mitigative strategies for wildlife poaching. Using both the Universities' affiliation with media and the owners' media associations in East Africa, members of Temboiworry can present the findings while building the organisations' notability. Accolades and nominations to advisory boards/ government posts are achievable in the long term based on the success of this plan.

- **Utilisation**: Utilisation concerns the number of social media hits, citations, reports sold, and invites to conferences and appointments to consult on local and international policies. With the support of an academic institution, coupled with the owner's local network and existing social media presence, Temboiworry's work can be widely accomplished. Over time, Temboiworry hopes to grow into a go-to entity for all things related to research with an impact in East Africa and an international discussion platform for the broader concerns of green criminology in the unforeseeable future.

- **Impact indicators:** Impact is measured through the business' influence on policy changes, awards and grants achieved, general online and local reputation, challenges to conventional procedures and interactions with policymakers and government officials. The impact indicators will follow like a domino effect of successfully meeting the abovementioned three components.

Elevator Pitch

1.6 Business Name:

Tembo is the Swahili term for elephant, and *iworry* plays on as a homophone to ivory while highlighting the concern for the survival of one of our most iconic heritage species.

1.7 Strapline

Athari ya uwekezaji – impact investment

1.8 Elevator Pitch:

To be the leading fund manager for impact investment projects in Tanzania and a leading advisor functioning at the forefront of international and local policy dialogue dependent on Temboiworry's decolonised evidence-based data library.