Gender and Human-Wildlife Conflict in the Kakum Conservation Area, Ghana

By

Wisdom Galley

Submitted to Central European University - Private University
Department of Environmental Sciences and Policy

In partial fulfilment of the requirements for the degree of Doctor of Philosophy

Committee Members

Prof. Brandon P. Anthony

Prof. Guntra Aistara

Prof. Edward Wiafe

Vienna

June 2023

Notes on copyright and the ownership of intellectual property rights:

(1) Copyright in text of this dissertation rests with the Author. Copies (by any process) either in full, or of extracts, may be made only in accordance with instructions given by the Author and lodged in the Central European University Library. Details may be obtained from the Librarian. This page must form part of any such copies made. Further copies (by any process) of copies made in accordance with such instructions may not be made without the permission (in writing) of the Author.

(2) The ownership of any intellectual property rights which may be described in this dissertation is vested in the Central European University, subject to any prior agreement to the contrary, and may not be made available for use by third parties without the written permission of the University, which will prescribe the terms and conditions of any such agreement.

(3) For bibliographic and reference purposes this dissertation should be referred to as:

Galley, W. 2023. *Gender and Human-Wildlife Conflict in the Kakum Conservation Area, Ghana.* Doctoral dissertation, Department of Environmental Sciences and Policy, Central European University, Budapest.

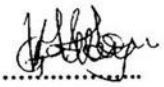
Further information on the conditions under which disclosures and exploitation may take place is available from the Head of the Department of Environmental Sciences and Policy, Central European University.

Author's declaration

No portion of the work referred to in this dissertation has been submitted in support of an application for another degree or qualification of this or any other university or other institute of learning.

Furthermore, this dissertation contains no materials previously written and/or published by another person, except where appropriate acknowledgment is made in the form of bibliographical reference, etc.

06 June 2023



Wisdom Galley

ABSTRACT OF DISSERTATION

Human–wildlife conflict (HWC) poses a significant challenge to biodiversity conservation, threatens the livelihoods of communities and is influenced by many factors, including ecological, political, economic, social, institutional, cultural, and historical features. This research draws insights from Feminist Political Ecology (FPE) to examine the impact of HWC on men and women around the Kakum Conservation Area (KCA), Ghana. Data from KCA staff and locals living near the park was collected through interviews, participant observation, focus-group discussions, and document review. The results indicate that in many households, crop-raiding by elephants has a negative impact on food availability and economic stability in communities. I also show how HWC has a negative impact on people's physical and mental health. These concerns originate from the prospect of being harmed or killed by elephants. Further, I examined why individuals are drawn to alcohol as a maladaptive coping technique in their daily life and demonstrate how attempts to limit HWC and reduce crop-raiding result in an increased risk of mosquito-borne diseases and fatigue. Also, the findings reveal that crop-raiding impacts communities by lowering farmers' social standing, community cohesion, social mobility, and education. I discuss the elements that contribute to HWC-related risks and vulnerabilities. I further outline the two principal means by which HWC contributes to HWC-related vulnerabilities: (a) higher exposure and (b) diminished capacity for adaptation. On the one hand, inequalities exist based on criteria such as gender; on the other hand, age and socio-economic position interact with gender to produce additional disparities and vulnerabilities. I explain, using the concept of intersectionality, that the relationship between HWC and social-economic inequality is a vicious loop in which pre-existing inequality is exacerbated by HWC. My interactions with people indicate that HWC is connected to a broader set of issues related to social and economic circumstances. Thus, multiple stressors combine to exacerbate HWC-related risks and vulnerabilities.

Keywords: Human–wildlife conflict; Gender; Elephants; Conservation; Feminist Political Ecology; Kakum, Ghana

Acknowledgements

First and foremost, my gratitude to the Almighty God for his strength and protection throughout my studies. Second, I want to express my appreciation to all individuals and institutions whose unwavering support has made the completion of this dissertation possible.

My heartfelt appreciation to my supervisors for their guidance and support (Prof. Brandon Anthony, Prof. Guntra Aistara, and Prof. Edward Wiafe). Their fantastic support, diligent and sincere advice, inspiration, instructions, and constructive criticism contributed to my intellectual development. I am grateful to them. Their insightful recommendations and remarks on different phases of my study made it feasible to complete this dissertation.

Without the help of the Central European University and my department, this project would not have been possible. I extend my sincerest gratitude to the academic and administrative personnel at CEU for fostering an enjoyable and intellectually encouraging atmosphere. Also, I am thankful to my Ph.D. colleagues, particularly Stephen, Attila, Ivana, Siobhan, and Moshahida, for their stimulating conversations, remarks, and encouragement. My heartfelt appreciation to them and the whole department.

I am also grateful to all the workers of the Forestry Commission and the Ghana Heritage Conservation Trust for their hospitality and cooperation. My heartfelt gratitude goes out to all the beautiful families who accepted me into their homes and to friends that have provided me with enormous encouragement and support throughout the years; I am thankful to them.

My heartfelt appreciation to my father, Lawrence, my mother, Bernice and my late step mother, Cecilia, for their prayers, love, and care. I am also grateful to my siblings, Celestina, Martin, Rita, Patience, William, Samuel, and Benedicta, for the immense love.

Finally, I want to express my sincere appreciation to my beloved son, Galley Wisdom Junior, in whom I am well pleased.

Table of contents

List of Figures

List of Tables

Abbreviations

AARR	Assin Attandanso Resource Reserve
ACA	Annapurna Conservation Area
AKRSP	Aga Khan Rural Support Programme
CAMC	Conservation Area Management Committees
CEHC	Cultural Ecology of Health and Change
FC	Forestry Commission
FPE	Feminist Political Ecology
GHCT	Ghana Heritage Conservation Trust
HWC	Human Wildlife Conflict
ISBC	International Stingless Bee Centre
KCA	Kakum Conservation Area
KNP	Kakum National Park
LEAP	Livelihood Empowerment Against Poverty
MESTI	Ministry of Environment, Science, Technology and Innovation
PA	Protected Areas
PTSD	Post Traumatic Stress Disorder
SDG	Sustainable Development Goals
SIDA	Swedish International Development Cooperation Agency
WD	Wildlife Division

Chapter 1 - Introduction

1.1. Introduction

This research examines one of the most common and pressing conservation challenges: human-wildlife conflict (HWC) and, more specifically, its gendered and intersectional dimensions, using the Kakum Conservation Area (KCA) in Ghana as a case study. Although HWC is a complex global phenomenon, it is more prevalent in developing countries due to factors such as poverty, inadequate implementation of conservation laws, and corruption amongst others (Lamarque *et al.* 2009; Gemeda and Meles 2018). According to Madden (2004, p. 248) HWC occurs,

"when the needs and behavior of wildlife impact negatively on the goals of humans or when the goals of humans negatively impact the needs of wildlife. These conflicts may result when wildlife damage crops, injure or kill domestic animals, threaten or kill people."

HWC poses a significant challenge to biodiversity conservation, threatens the livelihoods of communities and is influenced by many factors, including ecological, political, economic, social, institutional, cultural, and historical features (Madden 2004). The term 'human-wildlife conflict' and what it stands for is complex and debated by various scholars. However, it has become a central term to describe problematic situations between wildlife and people (Lamarque *et al.* 2009; Lewis *et al.* 2016; Osei-Owusu 2018). The term perpetuates the false notion and misconception that HWC solely relates to conflict between humans and wildlife.

HWC also entails antagonism *between* people *about* wildlife (Madden 2004). Dickman (2010) argues that HWC involves an equally important conflict between various actors who have different interests, attitudes, values, and levels of empowerment. Thus, HWC is sometimes a reflection of cultural misunderstandings, varying socio-economic needs, gaps in trust, and differences in access and control

over resources (Madden 2004). This expanded dimension is reflected by Seoraj-Pillai (2016, p.1), who defines HWC as:

'any instance in which the resource demands of humans and wild animals overlap, spurring competition for food, space and water and thus creating tension between people and wildlife authorities.'

For the purposes of this research, I adopt the definition by Seoraj-Pillai (2016) because it concisely encapsulates two critical underpinnings of HWC, which are (a) competition between wildlife and humans over resources and space and (b) antagonism between humans about wildlife and is thus suited for the complex and multidimensional nature of HWC issues investigated in this research. Despite the wealth of current knowledge of HWC, there are still significant gaps in our understanding. For instance, the role of gender and intersectionality (the disparities brought forth by simultaneous and interconnected statuses and how that affects the life course of an individual or group) is hardly considered in conservation research and policy, which is why this research contributes to the literature by investigating the impacts of HWC from a gender perspective.

Any scientific study is based on a research paradigm or philosophy, which may be defined as a set of linked assumptions that a discipline adheres to. As a result, I conclude Chapter 1 by laying forth the theoretical underpinnings of this research. In Chapter 2, I outline my research design in detail, as well as the philosophical notions that drive my dissertation and the implications of my techniques, all of which impact the methodological approaches I support in this study. Thus, I address the ontological, epistemological, and methodological views that inform my arguments.

The research philosophy I subscribe to in this dissertation aligns with an interpretivist epistemology. In contrast to positivism, the goal of interpretivism is to grasp the contextual rather than the standardized. Interpretivist epistemology has various further repercussions, and later in Chapter 2, I discuss the benefits and drawbacks of my pseudo-insider positionality. I also describe in-depth the nature and setting

of the study area, how reliability and validity were enhanced, as well as the study's limits and ethical issues.

In Chapter 3, I reveal how crop-raiding by wild animals has a negative impact on food security in the many households in the communities surrounding the KCA. I also illustrate the negative influence of HWC on people's physical and mental health. In addition, I expatiate how crop-raiding compels individuals to be drawn to the use of alcohol as a maladaptive coping technique in their daily lives. Also, I demonstrate how measures to minimize HWC and reduce crop-raiding result in increased exposure to illnesses and fatigue. In Chapter 4, I explain how HWC has a gendered effect, with men being forced to travel to surrounding cities in search of economic prospects. Women who are left behind may experience increased workload, psychological stress, and sexual repression. Further, Chapter 4 demonstrates how the intensity of HWC means poaching has become a more enticing option for many individuals in the communities. Also, I expatiate on how HWC results in social friction, disharmony, and animosity between villagers and park authorities. I discuss how HWC leads to opportunity costs, affects social cohesion, and how frequent absenteeism affects children's education over time.

In Chapter 5, in recognition of the fact that gender issues transcend other social groupings, I highlight the critical need to include the concept of intersectionality in analyzing how HWC impacts communities. The results reveal that this connection is characterized by a vicious cycle in which pre-existing inequality causes disadvantaged groups in the KCA area to suffer disproportionately from the effects of HWC, leading to even more inequality. Thus, although gender plays a key role in HWC-related risks, other factors such as age and socio-economic status are also important in producing HWC-related disparities and vulnerabilities. In Chapter 5, I expound that despite significant discrepancies, both men and women in my sampled communities have a strong sense of equality. They adhere to a conventional gender paradigm, which compels them to accept an uneven distribution of household work and its implications.

I argue that in the near future, HWCs are expected to continue. Policies, programmes, and actions that use wider participatory approaches to minimize threats to human and animal wellbeing and safety should be prioritized. Hence, the complexity of HWC necessitates a comprehensive toolkit that provides information for developing the ability to comprehend interactions between humans and wildlife, including gender-sensitive interventions. In the final chapter, I provide recommendations that I believe are essential in ensuring that HWC is managed in a just, effective, and gender-sensitive way.

1.2. Background

KCA plays a crucial role in creating jobs and generating income for residents through the sale of artifacts to tourists who visit the park and by being employed as tour guides (Acquah *et al*. 2017). However, it also poses a threat to the livelihoods of the communities around the park (Appiah-Opoku 2011). In 2010, research conducted in KCA revealed that 99% of respondents surveyed agreed that elephants were the most problematic wildlife (Addo-Boadu 2010). Dakwa *et al* (2016) noted that (i) crops are the basis for range selection by elephants, (ii) cocoa, maize, cassava, and pawpaw are commonly raided, and (iii) oil palm (*Elaeis guineensis)* plantations and farms with pepper fence are least affected by raids.

The raiding of farms has a detrimental effect on the community. For example, about 500 households lose approximately 70 percent of their food crops (estimated at 450 USD per farmer) to raiding (Lamarque *et al.* 2009). In order to manage the situation, residents employ both traditional deterrent methods (burning tires, using obnoxious herbs and noise-making, killing, and trap setting), though these methods are often illegal as they contradict the wildlife legislation under LI 585 (Addo-Boadu 2010). Despite the amount of knowledge on the causes, effects and management of HWC in KCA, there is a gap in the literature concerning the role of gender in influencing HWC impacts. This aspect has been unexplored although gender is an important social category in environmental research. There are

numerous reasons for considering gender issues in relation to environmental research, policy and practice. According to Nelson *et al*. (2013, p.129):

"Gender refers not to male and female, but to masculine and feminine - that is, to qualities or characteristics that society ascribes to each sex. People are born female or male, but learn to be women and men. Perceptions of gender are deeply rooted, vary widely both within and between cultures, and change over time. But in all cultures, gender determines power and resources for females and males".

This definition is based on the idea that gender is not biological but rather 'a social construction' organized around biological sex, which influences social roles and societal expectations. However, some scholars have argued that gender is not a 'unitary concept' (Belkhir and Barnett 2001). Thus, the experience of belonging to a particular gender is context-specific and hinges on other interlocking categories such as race and class (Belkhir and Barnett 2001, Brewer *et al*. 2002). Although studies that focus on gender as a single variable have been instrumental in illuminating the nature of power relations in different contexts, they often fail to highlight how this is reinforced by other crucial social factors (Kaijser and Kronsell 2014). Also, single variable studies have a tendency for over-simplification as they often analyze gender through a narrow prism of man-woman binaries (Denton 2002, Demetriades and Esplen 2010, Oparaocha and Dutta 2011).

A further criticism of narrowly defined studies is that such studies reinforce categorizations, thereby ignoring the 'complexity and fluidity of identities' and excludes those who do not fit in these rigid binaries (Alaimo 2009, Kaijser and Kronsell 2014). An intersectional approach is a concept proposed to address these flaws (Lykke 2010, Cho *et al.* 2013).

Davis (2008, p.68) defines intersectionality as '*the interaction between gender, race and other categories of difference in individual lives, social practices, institutional arrangements, and cultural*

ideologies and the outcomes of these interactions in terms of power'. The central idea is that social identities intersect to create different experiences of power and privilege (Crenshaw 1990, Kaijser and Kronsell 2014). As a result, 'intersecting identities' must be central in any gender-related research as they shape complex social inequalities (Kaijser and Kronsell 2014). In this research, I avoid the trap of essentialism (attributing fixed innate qualities to women and men) by drawing on Feminist Political Ecology and intersectionality to examine the extent to which gender and crucial social variables such as age and economic status influence wildlife-related risks and vulnerabilities. Ultimately, the goal of incorporating intersectionality in this project is not to integrate another analytical category that determines and influences HWC-related vulnerabilities but to widen the perspective and go beyond the narrow reading of gender as rigid and static binaries (Lykke 2010).

An intersectional approach for this research is advantageous in highlighting how social groups and individuals relate to HWC, due to their situatedness in dynamic social categorizations (Winker and Degele 2011). This approach and the integration of social categorizations are relevant in avoiding essentialization and highlights how categorizations may be reinforced, and identities are constructed in the face of wildlife-related risks and vulnerabilities (Winker and Degele 2011). Integrating intersectionality is also relevant in understanding how social variables, taken together, give rise to privileges, inequalities, vulnerabilities and differentiated access to opportunities and resources (Mollet and Faria 2013)**.**

Globally, there is an increasing realization of the need to prioritize gender issues in wildlife conservation. The increasing recognition of the need to preserve biodiversity is driven by global interest in creating a sustainable future that meets the needs of the present without compromising the ability of future generations to meet their own needs (Brundtland 1987). Several scholars have provided varying

evidence to show the relevance of gender sensitivity in biodiversity conservation (Biermayr-Jenzano 2003, Aguilar *et al.* 2004).

Gendered approaches have been relevant in many sectors such as forestry, biodiversity conservation and mangrove ecosystem management amongst others. There are a number of studies that have examined the importance of a gendered approach in tree planting and agroforestry (Sarin 1995, Banana *et al.* 2012). Some studies show that the gendered approach (especially the inclusion of women) in community-based forest management programs and committees yields better forest regeneration results (Agarwal 2009, Mwangi and Mai 2011). Similarly, research conducted in Africa and in some parts of Latin America found that gendered approaches to forest management result in better outcomes (Mwangi and Mai 2011, Suna *et al.* 2011).

The exclusion of gender approaches also results in the implementation of policies that are socially unjust. For example, in Central America, new restrictions were promulgated in an attempt to protect estuaries and adjacent forests (USAID 2001). Men fully supported and complied with the regulations because they fish away from the shores. However, women violated the restrictions because they were reliant on the estuary for their livelihood and the regulation failed to offer sustainable alternatives (USAID 2001). These show how people can be disproportionately affected by 'gender blind' conservation policies and regulations.

Gendered approaches have also been relevant in other sectors such as mangrove ecosystem management (Beardon 2008), and conservation of marine resources (Maliao and Polohan 2008). For example, in India, the efforts of the Aga Khan Rural Support Programme to organize and empower marginalized groups, particularly women, through both policy advocacy on Participatory Irrigation Management and irrigation cooperatives yielded positive results because of the re-thinking of gender equity concerns. Vasavada (2005) argues that the championing of gender equity resulted in better results. The majority

of the men interviewed asserted that women are more sincere both in terms of collecting irrigation dues and in cases where women have been trained as canal supervisors, they have also been more effective than men in ensuring that water is not wasted (Vasavada 2005).

These cases make an argument for the usefulness of gender-sensitive approaches in environmental research. Ultimately, Ogra (2008, p.1420) argues that 'if women and men experience conflict with wildlife in fundamentally different ways, then approaches to mitigating conflict must also be gender-sensitive.' It is based on this premise that this research seeks to highlight the relevance of considering gender and intersectionality in examining the impact of HWC.

1.3. Problem statement

HWC has become a menace in the communities surrounding KCA in Ghana (Addo-Boadu 2010, Binlinla *et al.* 2014, Dakwa *et al.* 2016). Cassava, maize, yam, and cocoa are the most often damaged crops, which are typically destroyed by rampaging elephants (Addo-Boadu 2010). This situation is ascribed to various factors, such as the increase in human activities around the park and the pressure to transform lands near the park for agricultural purposes (Akyeampong 2011, Appiah-Opoku 2011). These factors have inevitably increased the likelihood of residents coming into contact with wildlife resulting in competition between residents and wildlife as well as escalating animosity between residents and park officials (Addo-Boadu 2010)**.** Although the causes, direct impacts, and management of HWC have been extensively examined both locally (See Boafo *et al.* 2004, Addo-Boadu 2010, Monney *et al.* 2010, Binlinla *et al.* 2014, Dakwa *et al.* 2016, Osei-Owusu 2018) and globally (see Hill *et al.* 2002, Dunham *et al.* 2010, Barua *et al.* 2013, Lewis *et al.* 2016, Seoraj-Pillai 2016, Silwal *et al.* 2017), the different ways by which men and women are affected have been unexplored, making this research timely and novel. In order to address the above problem, the following research questions have been formulated.

Research question:

How do gender and other social categories influence human-wildlife conflict in the Kakum Conservation Area?

Sub-questions:

1. How are the impacts of HWC differentially borne by men and women in the communities near the Kakum Conservation Area? How does intersectionality influence these impacts?
2. How are the gender-differentiated impacts of HWC perceived by residents in the communities near the Kakum Conservation Area, and how are these impacts a broader reflection of cultural norms and power relations?
3. What gendered approaches and policy measures can be adapted to mitigate the impacts of HWC in the communities near the Kakum Conservation Area?
4. What lessons from the research findings can be applied in other relevant HWC hotspots?

1.4. Significance of the study

Gender sensitivity in HWC research is relevant because gender is an important factor in influencing vulnerabilities to the impact of HWC (Ogra 2008). It ensures that interventions address the challenges of an entire population, not just a particular group (Rocheleau *et al.* 1996). This notwithstanding, little is known of the link between gender relations and the impacts of HWC. The prevalence of poverty, the absence of adequate compensation schemes, and the increase in wildlife due to conservation success programs, amongst other factors, means that HWC will most likely continue to be a challenge to conservation efforts in the future. This means that interventions that reduce HWC-related risks (including gendered ones) must be prioritized. This research is also significant in contributing to the

realization of the Sustainable Development Goals (SDGs), especially in relation to gender equality and the empowerment of women. Specifically, this advances the objective of SDG 5.A which seeks to:

"Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance, and natural resources, in accordance with national laws."

Moreover, although the findings of this research are somewhat unique to the communities in which this research is undertaken, there is potential for them to be applied to other African communities that are facing similar HWC-related challenges. In the end, my position is that measures to reduce HWC need to be gender-sensitive since men and women have fundamentally different experiences regarding HWC-related risks and vulnerabilities. This might be helpful in promoting good people-park interactions in the communities that surround protected areas (PAs). It may also assist in creating conflict mitigation techniques that are more socially fair.

1.5. Literature review

1.5.1. Introduction

The following sections review the relevant literature related to gender and HWC. This literature review is a summary of the state of research and major trends in HWC and expounds on the current state of the field by examining the breadth and depth of the subject, more specifically the causes, impacts and management of HWC. The purpose of this literature review is to map the existing body of knowledge, highlight problems directly related to the research, and discover unaddressed research gaps.

1.5.2. HWC and its causes

Typically, HWC has been defined as any situation in which human and wildlife resource demands intersect, resulting in the struggle for resources such as food, water, and habitat among humans and

wildlife (Madden 2004, Woodroffe *et al.* 2005). HWC often occurs when wildlife inflict harm on agriculture, livestock, farm-raised game, and fisheries (Peterson *et al.* 2010). This frequently prompts intentional or retaliatory harm to species prioritized for conservation, instigated by individuals within and beyond the boundaries of PAs (Madden 2004, Lamarque *et al*. 2009).

Numerous studies highlight the causes of HWC (Distefano 2003, Madden 2004, Muruthi 2005, Lamarque *et al*. 2009, Lewis *et al.* 2016, Gemeda and Meles 2018), with increasing human population being the leading cause (Muruthi 2005, Lamarque *et al*. 2009). The growing competition for the same limited resources and space has compelled the transformation of PAs into 'islands of habitat surrounded by seas of cultivation and development' (Madden 2004, p.249). This is particularly prevalent and frequent in rural communities that are in close proximity to PAs (Anthony 2006, Ogra 2008, Lamarque *et al.* 2009, Gore and Kahler 2012). The gradual loss of habitat restricts wildlife to smaller pockets of suitable habitat and forces wildlife to stray beyond restricted ranges into adjacent farms and human settlements. The resulting close proximity between residents and wildlife means that conflict in such instances is inevitable (Muruthi 2005).

Animal behavior and the 'intrinsic characteristics of wildlife' such as food preferences also causes HWC (Lamarque *et al.* 2009). For example, in the communities around KCA, chili farms are less frequented by forest elephants (*Loxodonta africana cyclotis*). However, they are particularly attracted to crops such as maize and cassava, especially in the rainy season when the crops start to mature (Lamarque *et al*. 2009, Dakwa *et al.* 2016). These spatial and temporal dimensions also influence the risk of residents coming into contact with wild animals (Lamarque *et al.* 2009). Illegal activities by residents, such as poaching and the unlawful entry into PAs for resources such as firewood also result in HWC (Distefano 2003, Ogra 2008, Lewis *et al.* 2016, Mariki 2016).

The migration of people for reasons of security or food also causes HWC. Factors such as drought, floods, civil unrest, and natural disasters can compel people to migrate and settle down within and near PAs due to the availability of natural resources and also employment opportunities (Lamarque *et al*. 2009). For example, in the 1970s, the human population exponentially increased in the communities around KCA due to high levels of immigration of farmers from different parts of the country who sought favorable climatic conditions and fertile soil for the cultivation of cash crops such as cocoa (Lamarque *et al.* 2009). This situation led to an increase in human activities around the park resulting in antagonism between residents and wildlife officials (Binlinla *et al.* 2014).

In addition, natural factors such as droughts, bush fires, climatic changes, and other natural hazards can result in a decrease in suitable wildlife habitats and influence the occurrence of HWC. Furthermore, the decline in natural prey for carnivores can compel them to shift their diet preferences to other sources such as livestock, which are easier to capture (Mishra *et al.* 2003, Patterson *et al.* 2004). For example, a study in Tanzania (Packer *et al.* 2007) showed that the number of humans attacked by lions in each district was closely linked to two factors: the abundance of medium-sized prey (zebras, hartebeest or impala) and the abundance of bush pigs. Lion attacks were most common in areas where natural prey was scarce and bush pigs were abundant. Some residents reported that lions entered their communities and farms in pursuit of bush pigs. Also, some locals are attacked when asleep in makeshift huts whilst attempting to safeguard their farms from bush pigs (Packer *et al.* 2007).

1.5.3. Direct impacts of HWC

The direct impacts of HWC, such as injuries, death, and crop-raiding, are well-documented (Distefano 2003, Madden 2004, Woodroffe *et al.* 2005, Barua *et al.* 2013, Gemeda and Meles 2018, Gulati *et al.* 2021). Human deaths and injuries are the most devastating impact of HWC (Ogra 2008, Lamarque *et al.* 2009). In some African and Asian countries, mammalian carnivores and herbivores are responsible

for numerous fatal attacks and deaths (Binlinla *et al.* 2014). The consequences of HWC are more severe in developing countries where subsistence agriculture is a significant component of rural livelihoods. These effects are exacerbated by political marginalization, poverty, unresolved compensation payments, and exclusion of local communities in the management process (Ayivor *et al.* 2013).

HWC also results in the destruction of infrastructure and crop raids. According to Lamarque *et al* (2009), crop-raiding is dependent on factors such as the availability of food source, type of food, and the maturation time of crops. For example, a study conducted in KCA shows that June was the peak month of crop-raiding activities (2.4 raids /km), coinciding with the maturation period of maize, whilst October recorded the least number of crop-raiding activities (0.1 raids /km) (Danquah *et al.* 2006). On a national scale, crop-raiding by herbivores or carnivores preying on livestock may seem insignificant. However, this can be the difference between self-sufficiency and dire poverty at the household and communal levels.

HWC is also associated with the transmission of diseases. For example, in the United Kingdom, badgers are reported to infect dairy cattle with bovine tuberculosis (Wilkinson *et al.* 2004), whilst buffalo (*Synercus caffer*) have been infected by cattle at the wildlife-livestock interface at Kruger National Park, South Africa (Garine-Wichatitsky *et al.* 2010). HWC also impacts wildlife through persecution such as poisoning, shooting, and trapping as a form of retaliation by farmers (Distefano 2003, Lamarque *et al.* 2009). These human-induced wildlife mortality results in changes in population structures, genetic diversity, and ecosystem equilibrium (Woodroffe and Ginsberg 1998).

1.5.4. Indirect impacts of HWC

Conservationists often portray HWC as events that directly impact individuals and groups. Thus, attempts to examine the impacts of HWC tend to gravitate towards the direct or visible impacts whilst the indirect impacts are often ignored. However, more recently, some scholars have argued for the need

to broaden the impacts of HWC to capture the indirect effects (Ogra 2008, Barua *et al.* 2013, Khumalo and Yung 2015). In the literature, the indirect effects of HWC are synonymous with 'secondary impacts' (Hunter *et al*. 1990), 'opportunity costs and transaction costs' (Barua *et al*. 2013), and 'social complexities' (Madden 2004). According to Ogra (2008), the indirect impacts are characterized by one or more of the following traits: (a) uncompensated, (b) temporally delayed, or (c) psychological or social in nature. Thus, it encapsulates the antecedents that slip critical inquiry; hence, they are hardly documented and poorly addressed.

Indirect costs also entail effects on psychosocial wellbeing (mental health consequences) as a result of injury or death from wildlife (Dixon *et al.* 2009). For example, a study conducted in India showed that more than 50% of widows who lost their partners through wildlife attacks suffered from poor mental health (high rates of depression) because of cultural stigmatization (Chowdhury and Jadhav 2012). Also, in northeast India, some affected families of victims reported cases of psychosis, Post Traumatic Stress Disorder (PTSD), and depression (Jadhav and Barua 2012). Other psychosocial effects include the emotional toll of worrying over lost livelihoods (DeMotts and Hoon 2012, Gore and Kahler 2012) and fear for physical safety (Ogra 2008).

These impacts can often penetrate deeper than immediate wildlife-related risks and threats (Barua *et al.* 2013, Khumalo and Yung 2015). Institutional conflicts may also arise from unresolved HWC. For example, in South Africa, Anthony *et al* (2010) found institutional friction between and within the Department of Finance and Economic Development/Environmental Affairs, Traditional Leadership bodies and the Kruger National Park because of unresolved HWC. Furthermore, in some rural areas, the demise of a breadwinner by wildlife can have a knock-on effect as some key responsibilities are transferred to other members of the family. For instance, a study conducted in India showed that the injury or death of men aggravated penury in households (Barua *et al.* 2013). Similarly, a study conducted

in Namibia showed that in a month, herders could lose about four animals to predators, and this negatively affected family wealth and livelihood (Tjaronda 2007).

The indirect effects also include exposure to diseases (Ogra 2008). In order to prevent wildlife from destroying farms, farmers in some instances try to guard their farms which results in exposure to diseases like malaria and trypanosomiasis (Dutta *et al.* 2010, Barua *et al.* 2013). For example, in India, a significant number of malaria cases are recorded in HWC hotspots (Dhingra *et al.* 2010, Barua *et al*. 2013). HWC also impedes movement and activities such as travel. For instance, in Taita Taveta District in Kenya, officials had to impose a curfew on residents for their own safety because of uncontrollable movements of wildlife (Kimega 2003).

1.5.5. Management of HWC

Numerous studies have explored the various approaches of managing HWC (Osborn and Hill 2005, Parker and Osborn 2006, King *et al.* 2009, Woodroffe *et al.* 2014, Ngama *et al.* 2016). Lamarque *et al* (2009) have categorized these approaches into three broad groups.

(a) *Prevention strategies* are geared towards preventing the conflict from occurring in the first place. A typical example is land use planning. However, it is financially exorbitant and often used as a long-term measure to tackle HWC (Subakanya *et al*. 2018).

(b) *Protection strategies* entail approaches employed when conflict is almost certain to occur (see Table 1). For example, some farmers in Kenya, Botswana, and other parts of southern Africa erect fences to protect their herd from carnivores such as lions, wild dogs, and cheetahs (Osborn and Hill 2005, Woodroffe *et al.* 2014).

(c) *Mitigation strategies* attempt to reduce the level of impact and lessen the problem. An example is the use of insurance schemes which entails the payment of premiums for cover against HWC-related risks such as death, injuries, or crop raids (Chen *et al.* 2013).

Deterrent	**Target**	**Approaches**	**References**
Acoustic deterrents	Emitting an unexpected loud noise or specific sounds known to scare wildlife	Beating drums, shouting, yelling and setting off explosive devices	Frank and Woodroffe 2002, Lamarque *et al.* 2009
Visual deterrents	Used to frighten wildlife	Scarecrows	Newmark *et al.* 1994, Tweheyo *et al.* 2012
Olfactory deterrents	Use of compounds to deter wildlife by generating an unpleasant smell	chili peppers chili-dung bricks chili-tobacco rope	Chelliah *et al.* 2010, Govind and Jayson 2013
Taste deterrents	Targets the sense of taste	(Chemical repellent) Lithium chloride Chili and ginger	Forthman *et al.* 1985, Parker and Osborn 2006
Contact deterrent	Targets the sense of touch	Use of bees	King *et al.* 2009, Ngama *et al.* 2016, King 2019;

Table 1. Deterrent methods in repelling wildlife

HWC management approaches can also be classified into long-term and short-term. An example of a long-term approach is the formulation and implementation of concrete policies. Countries such as Namibia and Bhutan have comprehensive policy documents that guide decision-makers at the national,

regional and local levels on how to deal with HWC in the long term. For instance, in 2009, Namibia implemented the National Policy on Human-Wildlife Conflict Management and revised it in 2018 (MET 2018). The policy document provides a national path for the management of HWC. Similarly, Bhutan also has a Human-wildlife Conflict Management Strategy Policy document (introduced in 2008) and the Human Wildlife Conflict SAFE Strategy which was produced in collaboration with the World Wildlife Fund with the aim of addressing HWC through comprehensive lasting solutions (NPPC and WWF-Bhutan 2016).

Another long-term solution is land-use planning. Several HWC hotspots have adapted participatory land-use planning and zoning exercises as a long-term measure for the management of HWC, including the Kilimanjaro Heartland, Elerai, and Kitirua in Kenya and Enduimet in Tanzania (Muruthi 2005).

Furthermore, some governments and NGOs manage HWC by using compensation schemes (Bulte and Rondeau 2005, Ogra and Badola 2008, Anthony and Swemmer 2015) whereby payments are made to people in the event of a loss such as human death, injuries, livestock loss, or crop raids. Such schemes aim to increase tolerance levels and prevent retaliatory killings (Muruthi 2005). However, some researchers have argued against it and theorize that paying compensation does not resolve the root causes of HWC (Bulte and Rondeau 2005). Though compensation schemes have been successful in some circumstances (Anthony and Swemmer 2015, Anthony 2021), they are often expensive and bridled with challenges such as bureaucratic inadequacies, corruption, and fraudulent claims (Muruthi 2005). For example, a pilot compensation scheme by Friends of Nairobi National Park aimed at compensating farmers in the event of loss of livestock to predators proved too expensive to continue (Muruthi 2005). On the other hand, short-term approaches are relatively inexpensive and aim to temporally manage HWC. These include the use of deterrent methods that target the different senses (hearing, sight, smell,

taste, and touch) of animals (Table 1). Other management measures include culling (lethal) and non-lethal immuno-contraceptive methods (Miller *et al.* 1998, Massei and Cowan 2014).

1.6. Theoretical approach

1.6.1 Introduction

In this section, I expatiate the theories; FPE, gendered division of labour, and intersectionality. I also highlight the significance in moving beyond analyzing the direct impacts of HWC as well as the usefulness of these theories in identifying the connection between the social construction of gender and the impacts of HWC. These theories provide a useful framework for comprehending how gender and the environment intertwine. The emphasis of these theories on unequal environmental impacts makes them suitable for analyzing socio-ecological problems such as HWC.

HWC is also an issue of inequality because men and women are impacted differently. Despite the extant evidence of the impacts of HWC, gendered impacts are often disregarded. In this study, I also incorporate the concept of intersectionality to ensure inclusivity. This concept acknowledges that environmental impacts are not a standalone problem but interconnected with broader systems of injustice. By adopting an intersectional approach, the role of other axes of power and how they influence the impact of HWC is highlighted, thereby presenting a more comprehensive picture of the impacts of HWC.

1.6.2. Feminist Political Ecology

Political ecology is a field that primarily deals with the constantly shifting dialectic between society and natural resources (Nam 2018). Scholars of political ecology explore the association of political economy and human-environment interactions and hold the view that environmental problems are interwoven

with political structures (Bakker 2003, Nam 2018). They also examine the role of various actors (such as locals, NGOs, state structures, and international agencies) involved in the control over resources at multiple scales (Zimmerer and Bassett 2003, Robbins *et al.* 2007, Truelove 2011).

Since the 1990's, some political ecology scholars have taken a keen interest in gendered social relations of power (Carney 2004). Initially, these ideas were scattered across various disciplines rather than under one body of scholarship. In the mid-1990s, Dianne Rocheleau, Barbara Thomas-Slayter, and Esther Wangari introduced Feminist Political Ecology (FPE) as a discipline by bringing together women's experiences around the world in the book *Feminist Political Ecology*: *Global Issues and Local Experiences*. Although the book's introduction of FPE as a concept is groundbreaking in its own right, various feminist ideas on gender and environment have served as a theoretical background for FPE. Moeckli and Braun (2001) identify four key theories that are critical for the exploration of the link between gender and environment; and although these theories are unique, they are by no means mutually exclusive (i.e., ecofeminism, feminist environmentalism, poststructuralist feminism and Feminist political ecology).

Ecofeminists hold the view that women are biologically, ideologically, naturally, and socially closer to nature and are both relegated, dominated and exploited by androcentric and patriarchal structures (Moeckli and Braun 2001). Contrary to the ideals of ecofeminism, feminist environmentalists criticize ecofeminism for its over-emphasis on the disruption of patriarchy (Moeckli and Braun 2001). Ecofeminism has also been criticized as anti-progressive and for over-emphasizing a mystical connection between women and nature whilst neglecting the concept of intersectionality and ignoring racism (Biehl 1991).

Feminist environmentalists argue that it is not enough to explore social-political structures associated with gender equality, but it is also important to integrate the local and historical contexts, thereby

broadening the layers of conflict over resource use. On the other hand, scholars of post-structural feminism focus on polarized gender. For such scholars, gender is a social construction that is naturalized through repetitive practices and performatively reinforced (Meyers 2010). Poststructuralist feminists are interested in how gender is 'constructed and stabilized and reinforced performatively' (Moeckli and Braun 2001). These concepts on gender-environment relations serve as the bedrock on which FPE is built (Moeckli and Braun 2001).

The origin of FPE can be traced to the 1990s, when feminist scholars and activists began to question the dominant patriarchal and capitalist frameworks that influence human-environment links. They argued that conventional political ecology is inadequate in tackling the oppression of women and other oppressed groups by patriarchal and capitalist forces (Bavington *et al.* 2004, Hovorka 2006, Mollett and Faria 2013). Scholars of FPE also emphasised how conventional environmental movements frequently disregard or omit women's traditional environmental management and conservation experiences (Bavington *et al.* 2004, Cole 2017, Vaz-Jones 2018).

Basically, FPE is a branch of Political Ecology that examines nature-society linkages from a gendered perspective. FPE adds a gendered viewpoint and critiques how social inequalities influence environmental challenges. One of the primary differences between FPE and traditional political ecology is the emphasis on how social hierarchies and power relations affect access to and control over natural resources (Vaz-Jones 2018). According to FPE scholars, whereas political ecology seeks to explain the complicated relationship between society and nature, conventional political ecology has disregarded the influence of social inequalities, such as those based on gender and race (Elmhirst 2011, Mollett and Faria 2013). FPE scholars also criticises the means by which capitalist development models have frequently resulted in the marginalisation of vulnerable groups (Elmhirst 2011, Truelove 2011, Cole 2017, Vaz-Jones 2018)

Proponents of FPE theorize that vulnerabilities and risks associated with the environment (including HWC) are influenced by social factors such as gender. FPE is not only relevant in comprehending how unequal gender relations underpin environmental risks and vulnerabilities, but also builds on political ecology, and draws attention to interactions between gendered power structures and the natural environment (Truelove 2011). FPE as a theoretical concept moves away from the more essentializing arguments of ecofeminism and conceptualizes gender as a social construct that influences decision making, access to resources, rights and responsibilities (Elmhirst 2011).

1.6.3. Gender division of labour

To understand the interactions between gender and HWC, a feminist political ecology framework is adapted for the study. FPE provides a unique framework for analyzing natural resources through a feminist lens (Carney 2004). According to Rocheleau *et al* (1996, p.4), FPE treats gender as:

'*a critical variable in shaping resource access and control, interacting with class, caste, race, culture, and ethnicity to shape processes of ecological change, the struggle of men and women to sustain ecologically viable livelihoods, and the prospects of any community for sustainable development*.'

This theory is based on the premise that the environment and gender are intricately connected in significant ways. Thus, men and women are often allocated various responsibilities depending on cultural and societal norms. Some feminist scholars theorize that women have been disproportionately impacted by the uneven costs of environmental challenges as a result of gendered division of labour (Mohai 1992, Jackson 1993). According to Mussida and Patimo (2021)**,** this is due to the fact that women have traditionally been given 'care responsibilities'. The significant load of 'care' responsibilities exacerbates vulnerability and increases reliance on natural resources, especially in rural regions where access to and control over resources are constrained (Sultana 2010, Rao *et al.* 2019). For

instance, women who are often in charge of collecting water, have a heavier task due to the difficulty in locating water sources (Boone *et al.* 2011, Asaba *et al.* 2013).

Also, women are often expected to provide water for their households. Hence, in times of water scarcity, the burden intensifies as there might be an increase in the distance travelled to collect water. Also, women might spend a lot of time and energy searching and collecting fuelwood (Anthony 2007, Ogra 2008, Gore and Kahler 2012). More time spent searching for these resources means potentially higher vulnerability to HWC and less time available to engage in other productive activities. This example highlights the relevance of considering division of labour a credible variable to consider in analyzing gender and HWC.

Agarwal (2000) notes that structural inequities in ownership, access, and decision-making impede women's ability to fully benefit from natural resources; hence development programmes must integrate gender perspectives to combat this pattern of exclusion; And in order to ensure socially just policies, gendered environmental impacts ought to be addressed (Elmhirst 2011, Rocheleau *et al.* 1996). Some scholars theorize that the impacts associated with the conflict between humans and wildlife are significantly influenced by gendered division of labour (Ogra 2008). Thus, in many communities, the gendered division of labour significantly affects how men and women view and respond to HWC. This is because the division of labour frequently determines who is in charge of certain tasks like caring for and protecting livestock and farms, harvesting natural resources, and being in close proximity to wildlife (Mariki 2016).

This research seeks to understand the gendered impacts of HWC premised on the idea that gender is a social construction, that influences division of labour and HWC. The earlier *essentialist* and *universalist* views of men and women, which held that all men and all women shared the same, universal characteristics, are conceptualised in this research as being too disconnected from reality. The social

structure of rural societies such as those near Kakum are predicated on the idea that individuals are designated distinct roles according to their gender. This study assesses the role gender plays in HWC impacts in this geographical context because gendered effects are localised and can even vary by location and culture.

1.6.4. Intersectionality

Intersectionality is a concept credited to Kimberlé Crenshaw. She noted that intersecting multiple social categories served as an obstacle for many marginalised individuals around the world. Since its inception in the 1980s, intersectionality has remained a useful tool for comprehending how interactions between numerous social categories shape various experiences. Several feminist scholars support Crenshaw in acknowledging the significance of studying the mutually constitutive elements in order to comprehend inter alia women's oppression (Yuval-Davis 2006, Gillman 2007).

Intersectionality emphasises how the interconnectedness of social categories are mutually constructed. It is an important framework for understanding the interdependencies between various social categories (Phoenix and Pattynama 2006, Shields 2008). It is also significant for feminist scholars because it provides theoretical insights into how members of specific groups may experience vulnerabilities differently based on their race, sexual orientation, class, and other social orientations. Recognizing these distinctions enhances our comprehension of social fairness and inequalities. The concept of intersectionality is also a critical approach that investigates how multiple power relations overlap and impact social relationships (Nash 2008). It opposes the view that individual characteristics can be understood independently of one another because these categories are interconnected and mutually influential; therefore, analysing them as distinct entities is erroneous (McCall 2005, Nash 2008).

The notion of intersectionality also recognises that a single factor rarely oppresses people and instead emphasises the intricacy of social inequalities. Thus, humans are impacted by the intersection of many

factors in interdependent systems and power structures like laws and regulations. These power systems can produce privileges or oppression via racism, sexism, homophobia, transphobia, and ableism (Hankivsky *et al.* 2014). In contrast to monistic views, which view social categories such as gender, race, and class as distinct and separate, intersectionality acknowledges the interrelated nature of these categories (Cho *et al*. 2013). By employing intersectionality as an analytical tool, this study transcends beyond a restricted perspective of social inequality through single entities.

The concept of intersectionality is essential to feminist theory's contribution to the understanding of social relations. It entails how social systems interact to create distinct experiences and forms of oppression for particular populations. Intersectionality also enables scholars, policymakers, and leaders of social change to move beyond single-identifying variables and group-specific issues, resulting in more inclusive policies and regulations. The concept has been used to examine various environmental challenges. For instance, climate change scholars have noted that in actuality, people's sensitivity to climate change and their experiences with adaptation and mitigation techniques are influenced by social categorizations and systems of power, including political and societal institutions (Arora-Jonsson 2011).

Also, Sultana’s (2010) examination of flooding in Bangladesh revealed that women are not a homogenous group with respect to their flood experiences and that their experiences are influenced by class, caste, religion, and age. For instance, poorer agricultural women are especially vulnerable due to intersecting variables that limit access to resources. Similarly, characteristics such as class, religion, and educational standing also influenced men's experiences. Intersectionality thus gives insight into social justice issues by evaluating power relations and privilege. Furthermore, Dzah (2011) research on climate change in Ghana shows that a binary comparison of men and women is insufficient to comprehend the effects of climate change. This is because vulnerability and adaptive capacity to climate change are determined in part by gender, age, ethnicity, and marital status.

In using intersectionality to analyze HWC, this study provides a multi-layered examination of the effects of HWC and the social categorization of those affected. This is influenced by calls by some scholars who advocate for a shift toward post-structural intersectionality where gender has been decentralized and is not considered an absolute category (Elmhirst 2011, Nightingale 2011). Thus, the way gender is analyzed has changed, with gender becoming a de-centred subject (Elmhirst 2011, Mollett and Faria 2013). This is based on the premise that 'not all women are equally vulnerable' (Sultana 2014).

1.6.5. Summary

Due to the gendered impacts of HWC, HWC is also an issue of inequality because men and women are affected in different ways. This notwithstanding, the gender differences in susceptibility to the effects of HWC have mostly gone unnoticed. In this section I expatiated on the theories (feminist political ecology, gender division of labour and intersectionality) which I used in examining the gendered effects of HWC in Kakum. When combined, these theories offer a helpful framework for gaining an understanding of the ways in which gender and the environment are intertwined. These theories are well-suited for the analysis of environmental issues like HWC because they place a strong emphasis on the unequal distribution of environmental impacts. I incorporated the idea of intersectionality in order to include other axes of power. This concept emphasises that environmental problems are not an issue in and of themselves, but rather that they are interrelated with wider systems of injustice. Adding an intersectional approach is essential in highlighting a more complete picture of the effects of HWC.

Chapter 2 – Methodology

2.1. Introduction

In this chapter, the methodological approach of this dissertation is discussed. I describe in depth my study design, the philosophical concepts that underpin this research and the ramifications of my methods, which essentially bear on the methodological viewpoints I support in this study. As a result, these consequences merit further discussion in relation to the ontological and epistemological perspectives that serve as the dissertation's foundation. As I explain in this chapter, philosophical choices have important consequences for the approaches and methods used (Figure 1).

2.2. Research paradigm

First, I expatiate on the research design and research paradigm that underpin this dissertation. Any scientific research is dependent on a specific research paradigm or philosophy, interpreted as a set of related assumptions or a collection of common values that a discipline adheres to (Levers 2013). To summarise, any scientific inquiry is shaped by a set of philosophical assumptions about *ontology*, *epistemology*, *methodology*, and the instruments used for data collection (*methods*). These structures are related in the following way: ontology defines epistemology, which defines methodology, which in turn defines data collection techniques (Slevitch 2011, Levers 2013). Thus:

> '*what we believe about reality defines what we construe as legitimate knowledge and how we obtain it, which in return, defines our principles of scientific investigation, which sequentially define the research techniques we apply*' (Guba and Lincoln 1994, cited in Slevitch 2011, p. 75)

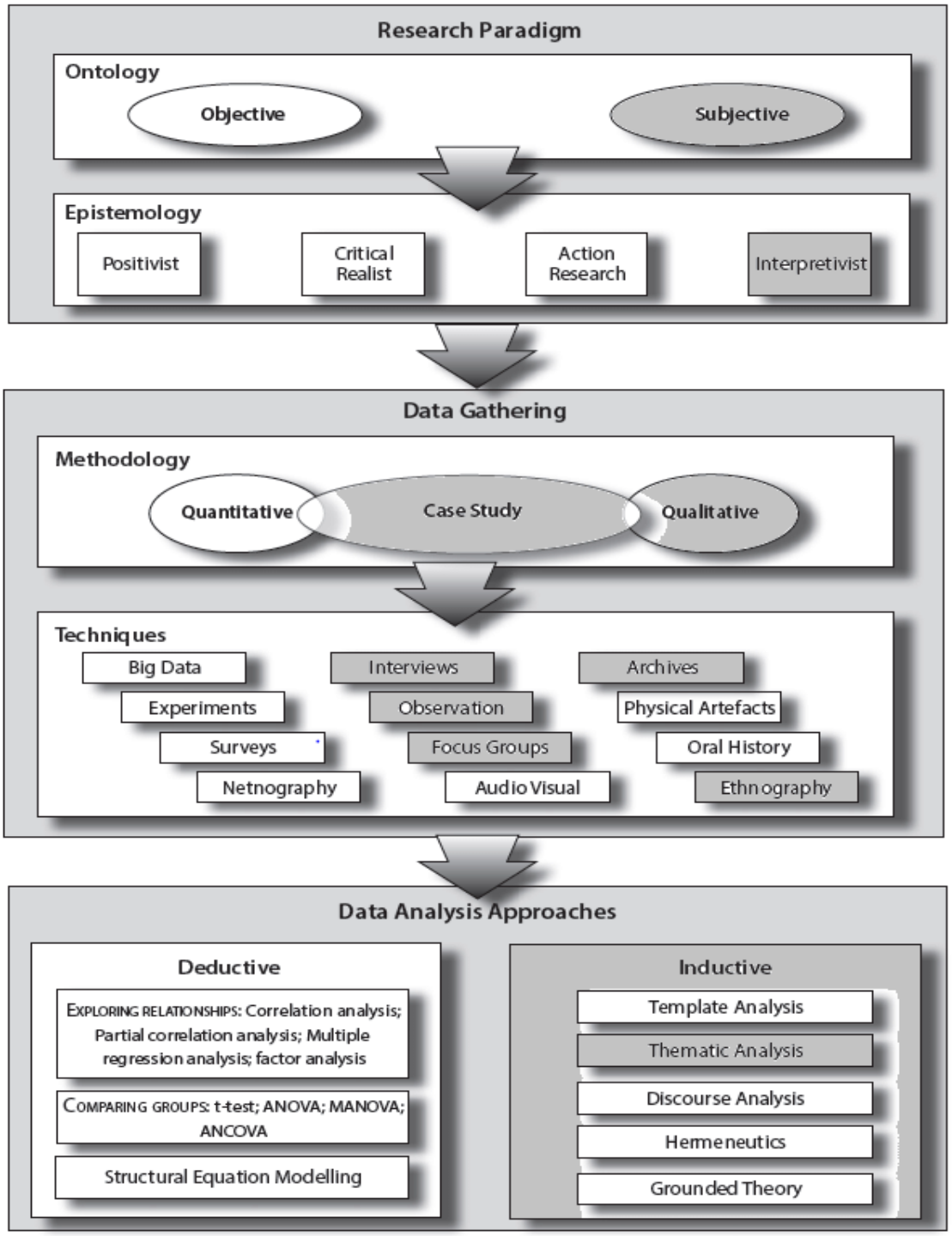


Figure 1. Methodology map[1] (O'Gorman and MacIntosh 2015)

[1] The methodological approach(es) used for the study are indicated in the shaded sections at each stage.

I argue for seeing the world through the lens of social constructivism. As a result, I see reality as socially constructed and given my research paradigm and the viewpoints I argue in this dissertation, researching the relationship between gender and HWC through a social constructivist perspective is unarguably subjective. This implies that 'knowledge is situated' and is open to different interpretations, as opposed to seeing knowledge as abstract, empirical, and absolute (Haraway 1988, Hellström 2008, Antwi and Hamza 2015). Simultaneously, this ontological perspective has important consequences for how to best understand this object of study – i.e. epistemology.

The research philosophy I subscribe to aligns with an interpretivist epistemology. From an interpretivist viewpoint, the aim as opposed to positivism is to understand the contextual rather than the standardized (Sandberg 2005, Hiller 2016). Consistent with a subjective ontology, interpretivism opposes the notion of empiricism in favor of how multiple realities are constructed (Sandberg 2005). Scholars of interpretivism argue that context is needed for interpretation; there is no such thing as an impartial interpretation (Sandberg 2005, Hiller 2016). As a result, reality can be comprehended through a variety of social constructions that are based on different interpretations but cannot be value-free or independent of people's perspectives and desires (Sale *et al*. 2002, Walsh 2003, Denzin and Lincoln 2005). There are several additional ramifications arising from interpretivist epistemology that I subscribe to as my philosophical position in this study. To begin, a qualitative paradigm inevitably follows as the emphasis is on interpreting interactions rather than defining standardized variables.

2.3. Study area

The Kakum Conservation Area (KCA) is located 30 kilometers northwest of Cape Coast (Figure 2) in Ghana's Central Region (Appiah-Opoku 2004). KCA lies between longitudes 1°30′W–1°51′W and latitudes 5°20′N–5°40′N (Monney *et al.* 2010), covers an area of 210.76 km^2 (Protected Planet 2021), and comprises two protected areas - the Kakum National Park (KNP) and the Assin Attandanso

Resource Reserve (AARR). The dominant vegetation type is tropical evergreen forest (Appiah-Opoku 2004) and is enriched with faunal diversity with about 200 bird species, 600 butterfly species, 200,000 - 350,000 insect species, and about 100 species of mammals (Appiah-Opoku 2004).

Administratively, KCA is under the jurisdiction of the Twifu Hemang Lower Denkyira, Assin (North and South), and Abura–Asebu–Kwamangkese districts of the Central Region of Ghana (Wiafe 2016). It is amongst the most established ecotourism attractions, with its status as the country's leading rainforest in this regard (Cobbinah 2015). KCA was declared a forest reserve in the 1930s (Eggert *et al*. 2003, Fiagbomeh 2012) and subsequently reclassified as a national park and gazetted in 1992 through the Wildlife Reserves Regulations (LI 1525) and has since been under the management of the Wildlife Division of the Forestry Commission with support from the Ghana Heritage Conservation Trust.

KCA is bordered by fifty-two communities and more than 400 hamlets. According to Ghana's 2010 national population and housing census, the villages and hamlets bordering KCA are home to around a quarter of the population of the Assin South and Twifo-Hemang Lower Denkyira districts (i.e., 39, 843 people) (GSS 2012 cited in Cobbinah *et al*. 2015). These are primarily rural districts, and the residents are composed of different ethnicities (Twifo, Assin, Denkyera, and Fanti), most of whom are believed to have migrated from the Ashanti Region. In addition to resident ethnicities, other ethnic groups, including Ewes, Krobos, Ga-Adangbes, and Akuapims, can also be found. These migrant ethnic groups came to settle due to the fertile lands and favorable climate for the cultivation of cocoa and domestic staples (Fiagbomeh 2012).

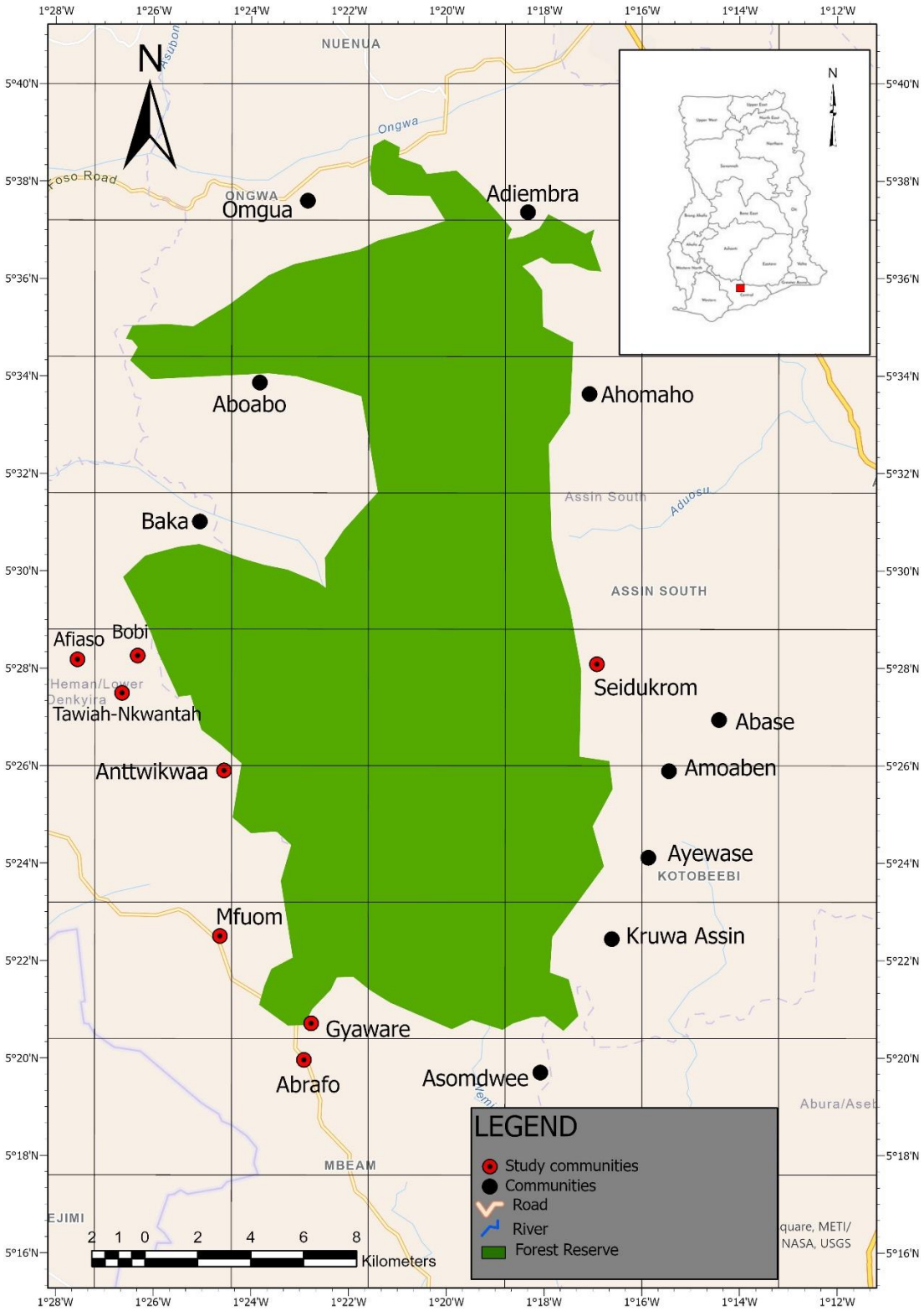


Figure 2. Kakum Conservation Area in Ghana (inset) and surrounding communities.

The adult population of the region has a high rate of illiteracy. Most communities only have elementary schools that last for six years, and none have high schools or tertiary institutions. Agriculture employs over 70% of the inhabitants in both districts (Cobbinah *et al.* 2015), while small-scale agriculture employs over 90% of the population in the communities bordering the KCA (Monney *et al.* 2010). Subsistence agriculture is supplemented by hunting, trading, oil palm processing, charcoal burning, distilling, weaving and carving, and domestic animal rearing (Dakwa *et al.* 2016). Seasonal activities – such as harvesting snails, mushrooms, pestle and mortar making and basket weaving – is used by local populations adjacent to the KCA as income-generating activities (Cobbinah *et al.* 2015).

2.4. Qualitative methods

Qualitative methods are relevant here because it presents a plethora of options in terms of the data collection methods used and given that my philosophical approach stipulates that we are intrinsically linked with the world and the people we study, a methodological approach is needed that prioritizes subjectivity. Also, this method is useful because the purpose is to gain a deeper understanding of the phenomenon that is being studied through the eyes of those that are being studied. The aim is not to strive for objectivity since that is deemed impossible from ontological and epistemological perspectives. Rather, the priority is on providing a detailed explanation of the phenomenon being studied. Furthermore, since the philosophical paradigms I subscribe to oppose the concept of a single truth in favor of multiple truths, it is prudent to use a variety of approaches. In this regard, an ethnographic approach comes in handy and is advantageous as it enables considerable versatility in terms of the techniques used in the data collection process (Fossey *et al.* 2002, Denzin and Lincoln 2005).

I proceed to detail the qualitative methodology utilized – an ethnographic approach. Given the subjective position taken in this study, I approach the data collection process in a reflexive manner, which is an important aspect of ethnography (Macbeth 2001). Reflexivity as argued by scholars (Macbeth 2001,

Berger 2015, Palaganas *et al.* 2017) is important because the researcher's definitions and meanings are often informed by unique ideological understandings of reality, and both 'subjects' and researchers are entwined in creating reality based on their intersubjective interpretation of it. Consequently, findings are produced collabouratively between participants and researchers within a unique context (Hellström 2008). This viewpoint opposes quantitative research methods, which stresses the distinction between researchers and subjects (Slevitch 2011, Levers 2013).

2.5. Ethnography

Ethnography is exploratory in nature and seeks to understand cultural systems from the perspective of the locals as a reflection of the complexities of human realities, and this cannot be adequately addressed by positivism. A central tenet of ethnography is that people's behavior can only be understood in a certain context (Boyle 1994). Thus, ethnography is anchored on a unique ontological orientation; that is, human beings as the basic unit of research have complex multiple realities that are context-specific and constantly changing. Epistemologically, in order to obtain in-depth insight into such complex realities, the classic ethnographic methodology entails open exploratory questions to immerse oneself and learn as much as possible about the realities of the ethnographic hosts. It is through this process that the ethnographer can *'grasp the native's point of view…to realize his vision of the world'* (Malinowsky 1922, cited in Whitehead 2004, p.16).

An ethnographic approach is suitable for this kind of research as the aim is to produce a 'thick description' of the research setting and gain holistic insights into ethnographic hosts being studied (Geertz 1987, Gottlieb 2006). This could only be achieved by 'getting inside', studying the way of life, and documenting the culture of the people from different perspectives through;

"*participating in activities, asking questions, eating strange foods, learning a new*

language, watching ceremonies, taking fieldnotes, washing clothes, writing letters home,

tracing out genealogies, observing play, interviewing informants, and hundreds of other things" (Spradley 1980, cited in Whitehead 2004, p. 17)

These methods align with this dissertation as the ultimate objective is to provide a detailed description that explores the connection between gender, intersectionality and HWC in a specific context. It should be noted, however, that classic ethnography is historically characterised as a written text, a cultural account of a culture, or tribe of interest. Thus, while the end result (the dissertation) is not an ethnography in the traditional sense, the process through which it was created borrows essentially ethnographic data collection techniques (discussed below).

2.6. Data collection

This section details the methodological techniques used to collect the data, including participant observation, interviews, focus groups, and document review. The combination of these techniques is advantageous for the broad purposes of depth and the ability to triangulate the data which strengthens the validity of the research (Mertens 2003, Migiro and Magangi 2011).

2.6.1. Participant observation

I undertook participant observation in selected communities and recorded my observations using The Cultural Ecology of Health and Change (CEHC) workbook for descriptive observations of social settings, acts, activities, and events (Whitehead 2005). In the CEHC workbook, I recorded my observations consisting of general descriptions as well as theoretical and reflective notes of what has been observed (Appendix 1). I also maintained a personal fieldwork diary during the fieldwork which was a vital component of the data collection process because it supplemented my field notes (CEHC workbook) and served as a means of verification.

I was hosted by key informants in two communities (Abrafo and Antwikwaa). This enabled me to familiarize myself with everyday experiences and also gave me a broader perspective of my ethnographic hosts' lived experiences and culture. Also, I was able to blend in through informal conversations, participating in rituals, assisting in agricultural and household labour, attending ceremonies and social gatherings. Staying with my ethnographic hosts provided me with 'rich' contextual details of the gendered division of labour (*Who does what, when, how and why?*) at both the communal and household levels. Through participant observation, I was also able to grasp certain distortions, discern inaccuracies, and verify 'facts' obtained through interviews. In addition, it gave me access to data on matters that interlocutors were unwilling to share. The use of participant observation as a data collection technique was useful as the goal was to observe the participants in as natural an environment as possible, explore and understand the role gender plays in influencing HWC-related impacts and vulnerabilities.

2.6.2. Interviews

Semi-structured interviews were conducted with key informants, opinion leaders, officials of the Wildlife Division of the Forestry Commission (FC) and individuals affected by HWC. Snowball sampling techniques were used to identify respondents for the interviews. Generally, I used snowball sampling to expand and access the social network of respondents. A total of 155 in-depth interviews were conducted in 8 communities: Abrafo, Mfuom, Gyaware, Antwikwaa, Bobi, Afiaso, Tawiah-Nkwantah and Seidukrom (Table 2). Abrafo was the first community as it is a major settlement and considered the gateway to the park. The other communities were selected after preliminary interviews with park officials and initial assessment of the park's quarterly reports.

Community	Men	Women	Total
Abrafo	14	12	26
Mfuom	10	13	23
Gyaware	12	0	12
Antwikwaa	10	14	24
Bobi	8	8	16
Afiaso	6	8	14
Tawiah-Nkwanta	12	10	22
Seidukrom	10	8	18
Total	**82**	**73**	**155**

Table 2. Selected communities and number of interviews.

The interviews were centred on the structural elements of governance and resource management in KCA, the history and management of the KCA, the gender division of labour, the nature of household power relations, and the nature and effects of HWC, as well as how these impacts are gendered and perceived. The interviews were audiotaped and later transcribed for thematic analysis. Additionally, several informal interviews took place as casual conversations. Some interviews lasted more than 45

minutes, while others were as brief as 20 minutes or less. Whenever possible, I recorded and transcribed casual conversations; otherwise, I relied on my notebook.

2.6.3 Focus group discussions and document review

I conducted focus group discussions in Mfuom. The purpose was to gain insights into how both genders are impacted by HWC and understand the range of opinions, inconsistencies, and variations that exist between gender and HWC. According to Colucci (2008), focus groups require consideration of 'ethnocultural variables' including group compositions. Hence, in order to diffuse potential power differentials and give space for free expression in a cordial and permissive environment, I conducted three focus groups; (1) men only (6 men), (2) women only (6 women), and (3) mixed (6 men and 6 women). This allowed both genders to express their thoughts freely.

The focus group discussions also gave me the opportunity to observe the nature of communal power relations and how power relations are negotiated between men and women. According to O Nyumba *et al.* (2018), the comparisons that participants and interlocutors make of each other's experiences provide valuable insights into complex power relations and attitudes. In addition, the focus group discussions also enabled me to clarify and elicit information from other data sources such as participant observation and interviews.

To supplement the data from the focus groups, interviews and participant observation, I conducted a document review by combing through a total of 30 KCA quarterly reports. Although these park reports were incomplete and poorly preserved, they compromised useful data on the nature of HWC in the communities. Also, reviewing the quarterly reports enabled me to triangulate the data by fact-checking some of the responses I got from the park officials.

2.7. Data analysis

I performed a thematic analysis in order to make meaning of the data. Thematic analysis is "a data reduction and analysis approach in which qualitative data is segmented, classified, summarised, and reconstructed in such a manner that it captures the data set's key concepts"(Given 2008, p.2). In other words, thematic analysis distinguishes and classifies data according to variations discovered throughout the data collection process. There is no overarching principle or unified approach to conducting thematic analysis. However, it is a method comprised of recognizable measures. It is important to emphasize, however, that this does not imply that thematic analysis proceeds in a static and linear fashion. On the opposite, it is a non-linear and iterative process in which various phases can overlap. The analysis performed is based on six interdependent steps (Table 3).

Phase	**Description of the Process**
1. Familiarizing yourself with the data	Transcribing data (if necessary), reading and re-reading the data, noting down initial ideas.
2. Generating initial codes	Coding interesting features of the data in a systematic fashion across the entire data set, collating data relevant to each code.
3. Searching for themes	Collating codes into potential themes, gathering all data relevant to each potential theme.
4. Reviewing themes	Checking if the themes work in relation to the coded extracts (Level 1) and the entire data set (Level 2), generating a thematic 'map' of the analysis
5. Defining and naming themes	Ongoing analysis to refine the specifics of each theme, and the overall story the analysis tells, generating clear definitions and names for each theme
6. Producing the report	The final opportunity for analysis. Selection of vivid, compelling extract examples, final analysis of selected extracts, relating back of the analysis to the research question and literature, producing a scholarly report of the analysis.

Table 3. Phases of thematic analysis (Braun and Clarke 2006)

One of the most critical first steps of the data analysis process is tidying up (LeCompte 2000), forming initial impressions and identifying any holes or data chunks by determining if the data collected is enough to answer the research questions. It also entails becoming acquainted with the data. For example, when gathering data, I saw trends and themes appearing in interviews, the document review and participant observation, which I noted on a regular basis. While still in the field, I also transcribed and also started reading transcripts of some of the interview data. By doing this, I gained a solid but limited interpretation of the various patterns that emerged from my data set.

I used QDA Miner Lite (v2.0.8) as a data management tool for coding. I coded the entire data collection, resulting in a lengthy list of codes. This means that I removed chunks of text from their original meaning and assigned them a unique code, or identifier that best describes the 'essence' of what is occurring in said text chunk.

To create themes, I began by checking them for similarities and trends, and then assigning them to various tentative yet overriding themes and sub-themes. I reviewed the themes and sub-themes to verify if some of the themes could have been omitted – all in the interest of further sorting, tidying up, and summarising the data collection.

Rather than seeing the themes in isolation, I viewed the themes as a network. In other words, I investigated the association between the themes and sub-themes. As a result, a dynamic network of connections emerged. The recurrent core themes and sub-themes were then connected to the research questions in light of existing literature, and these serve as the basis for my findings and discussion. Notable quotations from key informants, interviews, and focus groups are also used to elabourate on the findings and themes in order to give a voice to the ethnographic hosts.

2.8. Rigor, validity, and trustworthiness

Validity and reliability are critical standards for evaluating qualitative research. Hence, there is a need to ensure the validity (i.e., trustworthiness) and rigor of the findings (Golafshani 2003, Onwuegbuzie and Johnson 2006). However, 'there is no single validity test although there are guidelines that allow a certain quality to be guaranteed to qualitative studies' (Hayashi *et al.* 2019, p.103). Credibility and validity in qualitative research can be achieved through appropriate strategies such as triangulation, prolonged contact, persistent observation member checks, self-reflexivity and minimizing 'errors' (Brink 1993, Morse *et al*. 2002, Hayashi *et al*. 2019).

According to Brink (1993), 'errors' in qualitative studies are associated with the (a) the researcher, (b) the subjects (c) the social context and (d) methods of data collection which can all affect trustworthiness and the reliability of qualitative research. For instance, some informants and locals for various reasons were unwilling to share or distorted information. My prolonged period of stay made it possible to establish credibility and trust with the participants and although exit is essentially random, I determined that I reached saturation and believed that I had collected enough evidence to have something important to discuss about my research questions as my learning curve began to flatten out.

Also, I noticed instances of informant bias due to research fatigue and poor attention span. I minimized these hurdles by conducting interviews and then comparing the results with the notes I had from making multiple observations over time. This enabled me to verify and assess the uniformity and accuracy of participants' responses (Brink 1993).

One way of ensuring credibility and trustworthiness is through self-reflexivity (Brink 1993, Hayashi *et al.* 2019). Before, during and after the data collection process, I was constantly aware of the possibility of introducing my own biases and how this might affect the research process. Validity (trustworthiness) can also be ensured through 'member checking' (Brink 1993, Morse 2003**).** This strategy entails inviting

participants for their feedback on whether or not the findings adequately reflect the subjects and the phenomena being investigated. This ensures that the contents are accurate and presents an opportunity to correct researcher misperceptions and misinterpretations (Brink 1993). I regularly consulted and shared my observations and interpretations of events and activities with the participants on the field. By doing this, I was able to correct false interpretations.

Some scholars also recommend triangulation in ensuring validity (i.e., trustworthiness) in qualitative studies (Olson *et al.* 2016, Hayashi *et al.* 2019). According to Patton (2002, p. 247), "*triangulation strengthens a study by combining methods. This can mean using several kinds of methods or data, including using both quantitative and qualitative approaches*". For example, the combination of document review and interview of key informants helped me obtain details on gaps that may exist due to the poor memory of some key informants. In ensuring reliability, the triangulation of two or more data sources circumvents and overcomes the deficiencies intrinsic to a single-method study, thus increasing confidence in the findings (Morse *et al.* 2002, Golafshani 2003, Nightingale 2003)

2.9. Positionality

My positionality as a pseudo-insider (someone who is neither a complete outsider nor a full insider in the community being studied) comes with its own merits and challenges. I entered the field with an identity as a pseudo-insider because of my partial familiarity with the language, culture, socio-economic, and political dynamics of the research area. This positionality was somewhat advantageous in balancing the power relations between the participants and myself. Having prior familiarity with the culture gave me an insider's perspective and a significant edge in comprehending the study climate. This unique position contrasts with that of an outsider who might face structural impediments in having access to the study area. Also, an outsider who has no prior knowledge of the culture of the study area might find it difficult to adequately comprehend and make meaning of what is going on in the communities.

Also, my pseudo-insider positionality enabled fluid mobility and easier access to the field. Hence, I was in the position to ask insightful questions and easily picked non-verbal cues due to my familiarity with the socio-cultural setting (Chavez 2008). This fostered a degree of confidence which allows for a free and open exchange of ideas (Mercer 2007, Dwyer and Buckle 2009). Indeed, some participants were happy and eager to open up as they felt safe and believed that I was trustworthy. I was essentially seen as an ally because of my close ties to the participants; this privilege might not be available to a non-affiliated outsider (Brannick and Coghlan 2007). However, on the other hand, the consequential disadvantage is that some of them were not willing to discuss their personal issues in the context of the research (Mercer 2007, Chavez 2008).

My pseudo familiarity also made me susceptible to being unknowingly biased or overly sympathetic to the culture. Indeed, it is not unreasonable to suggest that my familiarity with the culture might have influenced me to have a somewhat myopic view of events observed (Chavez 2008). The most often seen negative aspect of research practices of insiders is that some results are ill-grounded upon certain presumptions and preconceived notions, leading to either insignificant or completely wrong findings. Thus, I was prone to premature conclusions. I am aware of the critiques levelled at my positionality as a pseudo-insider for being 'too acquainted'. One of the first issues was to ensure the study is thorough while minimising any potential biases. I am comforted by the argument that there is no insider or outsider who can claim to engage in pure objective observation (Smyth and Holian 2008). To address concerns about intrinsic subjectivity, the technique I used is the constant reflection and articulation of my positionality and how it moulds my viewpoint as a pseudo- insider researcher.

I understand the significance of highlighting my own positionality in connection to the research. My positionality offered certain advantages in navigating the intricacies of gender, power, and identity within the context of HWC. On one hand, my cultural and linguistic familiarity enabled me to access

and decode the nuances of the villagers' experiences, which might have been obscured to an outsider. On the other hand, my relative privilege as compared to the villagers' daily struggles posed a risk of essentializing or misinterpreting their experiences, an issue I was acutely aware of and actively reflected upon.

In light of my positionality as a pseudo-insider, I approached the research with humility, acknowledging that I may never fully comprehend the emotional and practical challenges faced by those directly affected by human-wildlife conflict (HWC). To bridge this gap, I committed to conducting my research with humility and curiosity, actively listening to and learning from the communities, and consistently remaining sensitive to their concerns. I also recognize that my background, experiences, privilege, and gender shape my positionality. For example, as a male researcher, my experiences might differ from those of female researchers, especially when engaging with women and addressing sensitive topics such as HWC and gender. To create a safe and supportive environment where participants feel at ease sharing their experiences and perspectives, I consciously worked to establish rapport with them and fostered a secure and respectful atmosphere during interviews and discussions. Female community liaisons played a crucial role in providing valuable advice on navigating the cultural, social, and gender dynamics within the communities.

Their familiarity with the local culture and connections with some community members made their guidance invaluable for discerning the community's cultural nuances. Consequently, their shared cultural background and language facilitated a harmonious atmosphere and mitigated social desirability bias. They also contributed to 'member checking' as I sought to navigate biases and intricacies. I frequently shared my preliminary findings with research participants and research assistants, inviting their feedback to ensure that my interpretations accurately reflected their lived experiences. Soliciting their insights, feedback, and advice bolstered the validity of the data collection process. The responses

obtained were crucial for identifying and addressing potential biases or blind spots. This collaborative approach not only enriched the research but also fostered a deeper understanding of the studied communities' lived experiences.

I recognize that my past experiences, personal beliefs, and preconceived assumptions might introduce biases into my study. To minimize the influence of my biases on my interpretations, I maintained transparency about my positionality, persistently questioned my assumptions, and engaged in critical self-reflection throughout the research process. I employed reflexivity as a strategy in examining the gendered impacts of human-wildlife conflict by continuously evaluating and confronting the ways in which my positionality and biases influenced the research process.

Reflexivity involves critically examining one's biases, preconceptions, and power dynamics that could affect the study (Oppermann 2000, Berger 2015). It entails continuous self-evaluation and introspection regarding my role as a researcher, my relationships with participants, and the ways in which my positionality might influence the research process and outcomes. I consistently engaged in reflective activities, such as maintaining a reflexive diary, to document my emotions, thoughts, and observations during the study. As part of my commitment to practicing reflexivity throughout the research process, I frequently contemplated my positionality and its impact on the research process. This involved questioning my assumptions and remaining open to new perspectives and insights. Practicing reflexivity is crucial for addressing biases and power imbalances, ultimately enhancing the credibility of the research process.

Triangulation played a key role in navigating the complexities of my positionality. Triangulation is a valuable research strategy that employs multiple data sources and diverse research methods to validate findings and develop a comprehensive understanding of a subject (Moon 2019). By incorporating various perspectives and approaches, triangulation bolsters the credibility, reliability, and validity of the

results. Triangulation enabled me to cross-check data and findings from different sources, thereby reducing bias and detecting inconsistencies. By comparing and contrasting multiple data sources and methods, I identified patterns and trends, resulting in a more thorough understanding of the subject matter.

For example, interviews facilitated the collection of in-depth information on participants' experiences, opinions, and emotions, offering insights into personal perspectives and narratives, which are invaluable for understanding the subject (LeBlanc 2010, Hughes *et al.* 2020). Focus groups facilitated the exploration of collective opinions and experiences and the identification of shared values and beliefs (Gill *et al.* 2008). Participant observation allowed me to immerse myself in the research setting, observing and participating in the daily activities of the subjects, fostering a deep understanding of social and cultural contexts and revealing insights that might be overlooked through other methods. Additionally, historical records provided an understanding of the issue and its evolution, contributing to more comprehensive and nuanced perspectives. This enabled the examination of processes, changes, and patterns over time. By combining these methods, I could cross-check their findings, increasing confidence in the results and identifying inconsistencies.

2.10. Data limitations

Snowball sampling is one of the methodological techniques that was used to recruit participants for the research. Although this technique was useful in recruiting suitable participants to inform the study, it is limited in the sense that it relies on the participants' social networks resulting in a more homogenous sample. Ultimately, this undoubtedly influenced the diversity and inclusivity of the research.

Also, the research will be centered on 'self-reported data.' This type of data has limitations, including (a) selective memory - the ability of participants to remember (or not) events that occurred in the past and (b) exaggeration - the propensity of participants to embellish events in order to make events and

experiences appear more significant than they actually are and (c) the ‘Hawthorne Effect’ may also manifest (Smith and Coombs 2003), as interlocutors may act or say different things in order to achieve certain objectives.

When I think back on my fieldwork experience, for example, I felt spending more time in the area may have provided more insight and could have been more beneficial. While the recommended amount of time spent in the field is unspecified, even though the ethnographer's learning curve eventually flattens, it is well accepted that one can spend as much time as possible. However, after a certain period of time in the area, the learning curve decreases, and findings and interviews narrow. This was the case as I randomly exited the field when I found a flattening learning curve and decided that I had collected enough evidence to make a novel and insightful contribution to the related literature.

Also, the documents and archives obtained from the park were patchy and incomplete. For instance, although the park was officially gazetted in 1992, I could only access 30 quarterly reports between 2000 and 2019. A complete report from 1992 to 2021 would have been more beneficial for fact-checking purposes.

The COVID-19 pandemic has had a profound influence on the methodology and execution of data collection processes. Travel restrictions, a critical measure implemented globally to combat the virus's spread, have significantly disrupted the typical modes of gathering data. The enforcement of these restrictions precluded the possibility of visiting certain communities to conduct in-person interviews, creating substantial impediments to the research process. Moreover, even after the abatement of travel restrictions, residual apprehension persisted within communities due to the widespread dissemination of misinformation concerning the virus. This pervasive fear contributed to a reluctance among potential interviewees to participate in the research process, motivated by concerns about potential virus

transmission. Thus, the COVID-19 pandemic not only physically hindered data collection but also introduced psychological barriers to participation.

2.11. Ethical considerations

One of the critical ways of enhancing the credibility of the research is by ensuring that all ethical considerations are adhered to. These include mitigating harm, respect for autonomy, ensuring anonymity and confidentiality, informed consent, and voluntary participation. Participation in this study was voluntary, with an option to withdraw anytime. This is particularly important because of the sensitive nature of the research topic. Participants and ethnographic hosts were allowed to engage in the research voluntarily. All the participants were given ample detail about the study and made aware of the implications of their participation. Participants were made aware of their right to terminate or withdraw at any time they deemed necessary with no negative repercussions.

Ethical approval was obtained from the Department of Environmental Sciences and Policy (CEU), and the research adheres to all ethical principles outlined in the Central European University's Ethical Research Guidelines (Appendix 2). This includes ensuring that the research is conducted in a respectful, humane manner and embodies the values of empathy. In order to ensure anonymity and confidentiality, the real names of participants were not used in order to protect the identity of participants. Informed consent was also secured by fully briefing participants on the nature and purpose of the study. However, in areas with low literacy rates, oral informed consent was sought from illiterate participants after being briefed on the purpose of the research, how the data will be stored, secured and used, and what is required of participants. All the measures taken to ensure confidentiality and anonymity were explained to participants. They were also given an information sheet in English with the researcher's and supervisor's contact information and a summary of what the study is about. The content of the sheet was elucidated in the local dialects to those who were not proficient in English.

Chapter 3 –Impacts of human-wildlife conflict in Kakum

3.1. Introduction

In this chapter, I examine in-depth both the direct and indirect impacts of HWC. I demonstrate how crop-raiding by wild animals has a detrimental effect on food security and economic stability in the sampled communities. While chronic hunger did not appear to be a concern, residents expressed concern about the inability to meet nutritional requirements due to the impact of crop loss on the variety and quality of food available.

I also demonstrate how HWC has a detrimental effect on people's physical and mental health, as indicated by feelings of stress, tiredness, fear, anxiety, and worry. Anxiety and fear were the most often stated mental health problems. When asked about mental health stresses, most participants said that elephant activities had the most influence on their mental health, expressing persistent fear. These concerns and anxieties originate from the prospect of being harmed or killed by elephants. Additionally, I discuss why people are lured to alcohol consumption as a maladaptive coping mechanism in their everyday lives.

Additionally, I explain how efforts to restrict HWC and curb crop-raiding result in increased exposure to diseases and weariness. Aside from the more conspicuous impacts of food insecurity and economic insecurity, this chapter also discusses how crop-raiding results in many subtle forms of vulnerability. Farmers, for example, who guard their farms against crop loss are more susceptible to illnesses such as malaria. Additionally, defending fields results in sleep deprivation and fatigue. The typology and linkages of these various factors are illustrated in the diagram below (Figure 3).

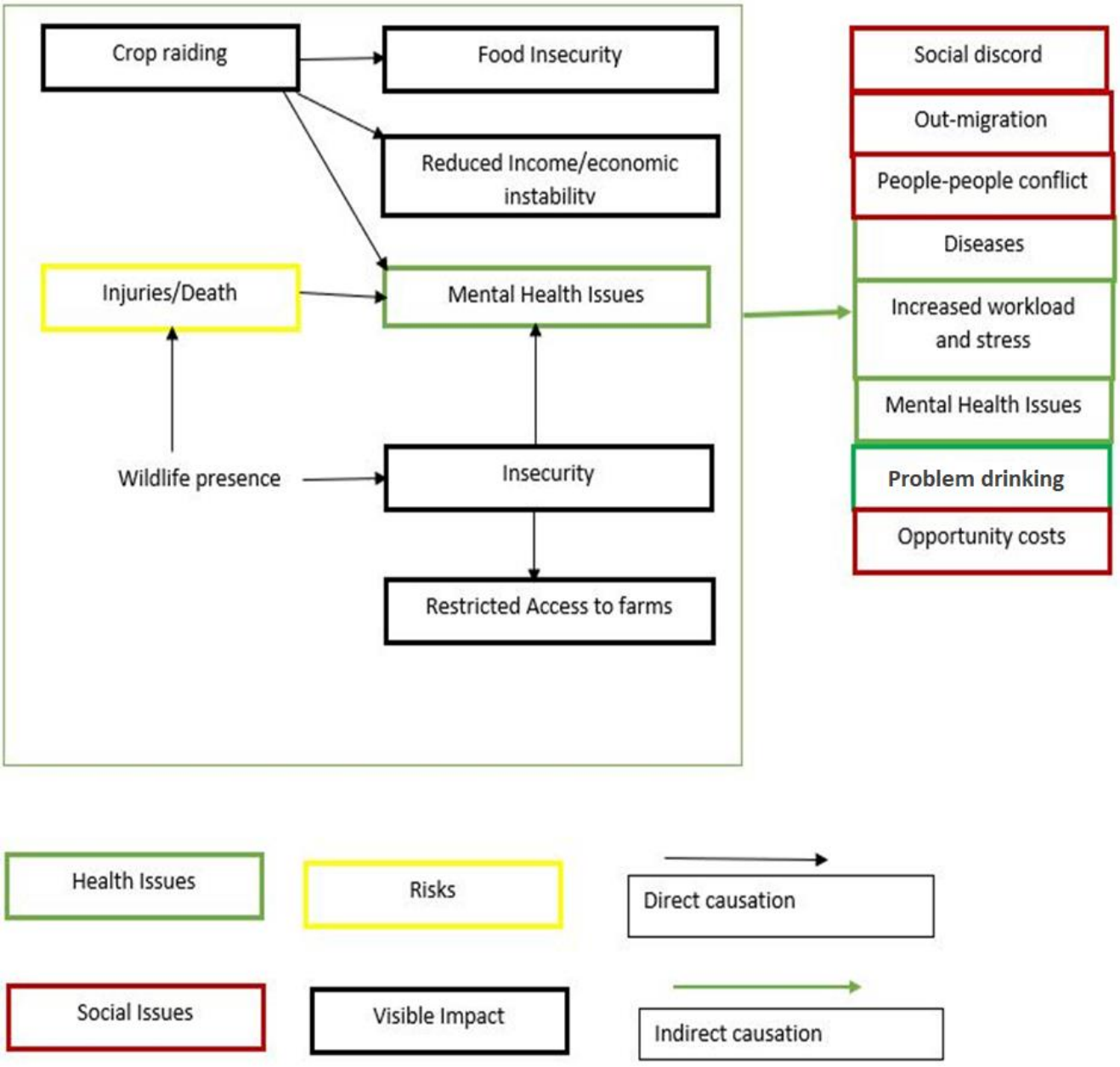


Figure 3. Direct and indirect impacts of HWC

3.2. Food insecurity and economic hardship

Crop-raiding by wildlife, especially elephants, via herbivory and stomping poses a danger to the food security in most communities surrounding the park. According to FAO (2006), food security pertains to the consistent access, both physically and economically, to adequate, safe, and nutritious food, meeting

dietary needs and preferences for an active, healthy life for all individuals. Additionally, food security entails consuming an adequate amount of calories as well as micronutrients to preserve health and nutrition. Thus, food insecurity is the inability to accomplish this goal. My findings from the focus group discussions and interviews in Mfuom show that crop-raiding by wild animals has a detrimental influence on most households in the community. Although chronic hunger was not a common occurrence in the communities, there was concern about an imbalanced diet as crop loss implies less money to satisfy nutritional requirements. For the past five years, one of the farmers in Mfuom has had her cassava and plantain fields ravaged by elephants at least once a year. She stated that the activities of elephants have an impact on the availability of food in her household:

I am a proud farmer. I have always been, but I feel a sense of shame when I have a farm but cannot feed my family. Sometimes I have to borrow money to buy food from other farmers. Is that fair? Toiling and suffering for weeks only for these animals to destroy everything overnight. [Female, 48]

A middle-aged man who endured crop-raiding by elephants in the past year in Tawiah-Nkwanta also expressed his displeasure:

I sometimes rely on other farmers for food. I am not lazy. I am young and work hard, but the destruction of my farm is sickening. They [elephants] worry us. Not just me but my neighbors also. If I get a good job, I will consider quitting because I can't be a farmer and still struggle to feed myself. [Male, 40]

Mfuom is one of the most affected communities. As we mounted the motorbike to interview farmers affected by HWC, I braced for the turbulent ride knowing that navigating the bumpy roads would be difficult. The motorbike jolted and lurched over the rocky terrain as the engine revved, and we set off. I strained to stay balanced as we bounced over deep potholes and uneven patches. Although the terrain was rough, I was amazed by the scenery. The road to the village was surrounded by lush greenery, with

towering trees stretching out in every direction. As we got closer, we were welcomed by the rustling leaves that occasionally brushed our faces.

I couldn't help but admire the village's unique features. Mud and brick houses with thatched roofs or corrugated aluminium sheets could be seen on either side of the main village street. The aroma of traditional delicacies filled the air. I found myself rambling around dirt paths that connected the houses, eager to become lost in the rhythms of this tight-knit community. Women were busy attending to their duties as I wandered through the village; their vibrant wax print clothing stood out against the earthy tones of the houses. Some carried firewood on their heads, and others deftly balanced water buckets on their heads while negotiating the uneven alleys toward their homes. A few men gathered in small groups amidst chatter and gossip. Children played merrily in the open areas between the houses, their infectious giggles and laughter are a sight to behold, and it doesn't take much to admire why the villagers are proud of their rural lifestyle. Notwithstanding, their interactions with wildlife often interfere with this joyous ambiance.

A middle-aged couple I interviewed epitomizes the anguish most farmers in Mfuom experienced due to HWC. Their house was typical of most Ghanaian rural houses constructed primarily of bricks and corrugated aluminium sheets. The earthy tones of the house blended seamlessly with the lush surroundings. The man of the house, a tall and skinny man with a pleasant grin, was visibly upset as he narrated the destruction brought by elephant raids on their farm. He incessantly described how his investment in their agricultural activities becomes useless when elephants visit their farm. Their farm is their primary source of livelihood. Hence, the elephant raids are a big blow to their food security and income. He stated that the wildlife officials had advised them to build a chili fence around their farm to prevent elephants from damaging their crops. However, despite their best efforts, they bemoan that elephants always managed to get through the fence and damage their farm. His wife, a diminutive

woman with a pleasant demeanour, lamented the sleepless nights her husband had spent guarding their farm, trying to frighten the elephants away. She expressed her displeasure with the chili fence, which, despite initially seeming like a brilliant concept, had failed to provide them with the security they desperately needed.

When they discussed their attempts to deal with the constant threat of crop-raiding and the risks it posed to their livelihood, the mood during the interview was depressing and contemplative. The more they talked about the struggles they go through due to HWC, I could sense the vulnerability in their demeanour. On guarding farms and farm security, the wife explicitly stated, *'guarding farms? That is not the role of a woman'*. She emphasized that men are viewed as the family's protectors in their community, and watching over the farms was just one component of men's responsibilities.

She also detailed the horrific events of elephants visiting their farm, and I could see the frustration in her eyes. Despite their best efforts, they could not hide their displeasure. Although losing their crops to elephant raids posed a significant threat to their way of life, they were considerate and thoughtful towards their neighbours. *'Every year, the elephants raid our neighbours farm too*,' his wife continued, with a tone of displeasure in her voice. '*The maize, the plantains, everything is destroyed by the elephants. Our neighbours are also suffering just like us*'. They also disclosed that farmers in other villages, such as Abrafo faced similar challenges with the chili fences, proving that they are not the only ones experiencing these challenges. Her husband agreed by nodding, "*We always try our best to prevent them from visiting our farms. Yet, nothing seems to be working*'. While I listened, it became apparent that despite the beauty of the landscape and the bright smiles, the challenges they face due to their interactions with wildlife are almost unbearable.

Other individuals also voiced their dissatisfaction:

Every time I plant my crops, I do my best so I can get a bumper harvest. However, I am mostly disappointed because elephants raid my farm almost every year. Last year, they destroyed everything. A few weeks ago, they came to my farm again. [Male, 52]

Elephants are our biggest problem; they will come to the farm and eat till they are satisfied. Sometimes, I can only watch from a distance as they eat my crops because I am scared of them. I go home angry and hungry whilst they are satisfied. [Male, 45]

In the KCA communities, both farmers and wildlife officials identified elephants (*Loxodonta africana*) as the main offenders, similar to other findings (Barnes *et al*. 2005, Danquah and Oppong 2007, Addo-Boadu 2010). Mammals such as wild pigs and elephants are often blamed for agricultural destruction and do bring significant suffering to subsistence farmers (Sitati *et al.* 2005, Graham *et al.* 2010, Tiller *et al*. 2021). However, on the farms, I observed that smaller, more ubiquitous animals are also significant crop raiders that destroyed farms regularly, contributing to food loss. These included rats (*Cricetomys emini*), squirrels (*Anomalurus spp.*), grasscutters (*Thryonomys swinderianus*) and birds including red-billed quelea (*Quelea quelea*), all of which affect the food supply of households resulting in decreased nutritional status. Globally, numerous species function as crop raiders, with various degrees of influence depending on the local circumstances. Insects, for example, do significant harm to farms in Africa; birds can also cause significant losses of grain (Bellotti *et al.* 1994, Stenseth *et al.* 2003). On the other hand, farmers in my study area did not express much frustration with these smaller species because comparatively, they caused less damage to crops and were often trapped and used as food, although this is illegal without a permit from the Wildlife Division.

Farmers in the affected communities also reported that crops (such as maize, plantain and cassava) that are critical for the sustenance of their households were the most susceptible to raiding by wildlife. Plantain and cassava are of great economic relevance and sustenance to farmers in the communities. For

example, cassava, which is locally known as *bankye* in Ghana, is an important staple crop with per capita consumption of 152.9 kg/year (Adjei-Nsiah and Sakyi-Dawson 2012). In addition to its function as a primary source of nutrition, cassava is a versatile crop that is processed into *gari* (roasted cassava granules), fufu powder, and *kokonte*[2]. In the communities, cassava is grown either as a single crop or as part of an intercropping system with other food crops. It is grown either as the primary crop or as a secondary crop; and because of the high nutritional content of cassava leaves, they are used as food for animals. For residents who practice mixed farming in the communities, planting cassava is advantageous as cassava leaves and peels are used for feeding livestock, particularly goats, pigs, and sheep.

Also, according to the farmers, maize (*Zea mays*) was one of the most raided crops. Maize is a favoured food crop in the communities due to its high yield and cheap labour input. It is a significant staple not just in Ghana but in other countries supplying at least 30% of the calories consumed by more than 4.5 billion people in 94 developing countries and more than 20% in regions of Africa and Asia (Shiferaw *et al.* 2011). Constituting an essential source of food security in the communities in KCA, it is at the same time more sensitive to raiders such as elephants due to its nutritional content (Adeola *et al.* 2018, Siljander *et al.* 2020).

Crop-raiding not only reduces the quantity of food available but also limits the variety of food available and thus lowers the quality of food supply (Figure 3). Some farmers during the focus group discussions outlined a connection between nutrition and their health and expressed their displeasure at the presence of elephants as their mobility is limited, making food crops inaccessible. A female farmer remarked:

[2] A staple food in Ghana primarily made of dried cassava flour.

I am scared. They are huge and fearless. When they are hungry, they are even more courageous. When I see them on my farm, I just go home empty-handed and starve. It is better for me to go hungry for the day than to get injured by these animals. [Female, 50]

Other farmers lamented:

This is my only source of income; when my farm is destroyed, I cannot get enough money to buy food for my family. Sometimes I have to go and buy food on credit. It is a shame because I am also a farmer. It is challenging. How will I get the energy to work if I am hungry? Why will my children not get sick if they are not well-fed? [Female, 47]

I have a family to feed; my wife and kids depend on me. How am I supposed to feed them if my farm is raided? How can I pay for the children's education expenses? Farming is what brings food and money. I have been to their office [Forestry Commission, Wildlife Division] several times at Abrafo but they don't do anything about it. [Male, 58]

No one really cares about us. Sometimes I have to go to my brother for food. I have planted cassava, plantain and maize but everything gets destroyed in a day. These animals are wreaking havoc on us. I am not the only one affected. My neighbour's farm too gets raided frequently. [Female, 52]

The loss of food as a result of HWC is not exclusive to KCA. Studies conducted in other parts of Africa and Asia show crop-raiding by large-bodied animals like elephants is one of the most common forms of HWC, significantly threatening food supply (Ogra 2008, Lamarque *et al.* 2009, Addo-Boadu 2010, Mayberry *et al.* 2017, Gemeda and Meles 2018). For example, in Uttarakhand (previously Uttaranchal) near Rajaji National Park in India, 98 percent of survey respondents reported that crop-raiding by elephants had a negative impact on their household's overall food supply; this notwithstanding, women

were found to be disproportionately affected because they are compelled to consume less in order to provide nourishment for their children (Ogra 2008).

Similarly, in other HWC hot spots in Africa, there are similar findings. For example, Nyirenda *et al.* (2018) demonstrated how crop-raiding elephants in the Lupande Game Management Area impacted the food security of surrounding subsistence farmers in Eastern Zambia. Bukie *et al*. (2018) observed that crop-raiding affected the food supply of farmers in Nigeria. In summary, crop-raiding by animals has a significant impact on the food baskets of subsistence farmers in terms of food loss, and while the loss of a few hectares of food staples to elephants in a single night may seem insignificant on a national scale, for rural households and families, it may represent the loss of their whole year's food supply and also be the difference between self-sufficiency and starvation.

Crop-raiding also results in the loss of income. Some cases can be more disastrous, especially for those who rely entirely on agricultural revenue. On the other hand, farmers and households with diversified portfolios are not severely affected as they rely on other avenues for income. The loss of a field or crop-raiding may be considered as a source of economic instability for rural inhabitants alike, as well as a threat to a prospective safety net during times of adversity. Also, their dignity and sense of identity is eroded when they lose a field or are unable to farm while physically well since they have to depend on the efforts of others rather than their own labour. Thus, crop-raiding sometimes places farmers entirely at the mercy of their relatives and friends.

Tawiah-Nkwantah was one of the communities severely impacted by HWC. While heading to the community for our interviews, we were welcomed by twisting dirt paths as we entered the village, surrounded by verdant vegetation stretching as far as my eyes could see. The roads were built of hard-packed dirt, with many potholes that made driving challenging and polluted the air with dust. The

distinctive beauty of the houses that lined the streets got my attention. Several houses had thatched roofs with little windows. They appeared to mix perfectly with the natural surroundings and had a rustic and traditional character. Some houses had metal roofs and big windows. They stick out from the rest of the village since they have a more contemporary and metropolitan feel. All the houses have a sense of connectivity as they are positioned close to one another, with narrow trails connecting them.

The faint sounds of clucking hens and bleating sheep fill the crisp air on the main village street. The village exuded a sense of serenity and calm that was complemented by the vast fields and soaring trees. Children waved and smiled as they walked to school in their vibrant uniforms. The village is beautiful, bursting with vivid colors and kind smiles. When I talked to the farmers, I realised that this rustic backdrop was deceptive. One can almost feel the pressure and challenges of their everyday lives, where success is not guaranteed in a challenging and uncertain life and years of labour may be derailed by a flock of birds, a colony of grasscutters, a troop of monkeys, or a herd of elephants.

At the end of the street, I saw some women balancing buckets of water on their heads with effortless grace and skill as other women carried baskets of fruits and vegetables. Their fabrics were brilliantly colored and included elaborate patterns and embellishments. The younger folks wore second-hand attire, locally referred to as *obroni wawu*[3]. These garments, frequently imported from Western nations, are distinctive cultural and economic phenomena that are both lauded and contentious. Some believed the clothing represented western cultural imperialism and endangered African cultural identity. Despite these worries, the *obroni wawu* trade flourished, giving many Ghanaians access to reasonably priced apparel as well as a means of livelihood for the sellers.

[3] A term for second-hand clothes in Ghana meaning 'dead white man clothes'.

As I thought about the *obroni wawu* phenomenon, I understood it represented a complicated interaction between regional cultural identity and global economic forces. The legacy of colonialism, the emergence of quick fashion, and economic development difficulties are only a few influences. Yet it also exemplified the Ghanaian people's fortitude and inventiveness, which they had used to adapt to shifting conditions and produce new cultural forms from the resources at their disposal.

I was in my own *obroni wawu* while I prepared to interview a group of farmers who were gathered in front of a local shop; I could feel an increasing sense of exhilaration. The youngest amongst them uttered the words *akwaaba*, which in the local language connotes ‘welcome’. However, it meant more. The term was etched on storefronts and printed on signs suspended above bar counters. Wherever I walked, folks gave me a friendly *akwaaba* and a smile. Everyone made me feel at home. I understood how *akwaaba* meant much more than just a simple welcome. It was a cultural ideal and way of life emphasizing friendliness, community, and hospitality extended to foreigners. I witnessed the deep relationships of friendship and support between people, even those I had just met, and I saw these values in action.

I also understood that the spirit of *akwaaba* had a lasting influence on me. I discovered the potent and transformative power of extending an invitation to people into one's life and community. Most of the farmers were friendly, and the more I interviewed them, the more I appreciated their situation and felt a sense of empathy for their difficulties, ranging from issues like poverty to socio-ecological problems like HWC.

The shame that most farmers feel about the inability to sometimes be food secure extends beyond their families. The pride they associate with their profession can be sensed in the sceptical way some of the farmers discussed the idea of compensation as a strategy to manage the conflict.

"There is no dignity in seeing our children go hungry whilst we pride ourselves of being farmers' [Male, 45]

Another farmer retorted: '*We have been having losses for almost every year. It will be a nice gesture if the government can compensate us for the losses. However, we don't want to be seen as beggars, we are proud farmers and we just want the right thing to be done'* [Male, 39]

According to a farmer in Mfuom, '*Even if I get money from the government for my losses, I will still not be satisfied. I want to reap what I have sowed and besides, I am sure that any monies that will be paid will not match the value of our losses.'* [Male 50]

The complexity of his emotions is illustrative of the complex nature of pride in general among farmers. He is relieved that he will be able to get some compensation for his losses but he is disappointed that he will also lose his *raison d'être* because the farm is an integral element of the farmer's identity and sense of pride (Brandth 2002, Burton 2004, Heather *et al.* 2005). For most of the farmers, farming is not just another job. The feeling of belonging to a bigger unit, one that extends beyond the boundaries of one's own farm and one's own generation, is encapsulated in being part of a unique heritage.

'We will always be farmers, this is what we are good at. My sons are in high school, but they are skilled farmers too, I am sure one of them will take over my farms when I am gone'. [Male 48]

'Farming is what I have known all my life. It is not the most lucrative job but I am proud of what I do. I am sure my family will still continue when I am old and weak.' [Male, 55]

Some of them also take pride in the fact that their farms are a source of employment for many people.

'*These staples are needed wherever you go. I am proud to be a farmer'.*[Male, 50]

'The cassava and plantain we farm here are sometimes sold in the city and consumed by a lot of people who have never been on a farm, and have no idea what it takes to produce these staples' [Male, 45]

'When we are not able to farm a lot of people will not be able to do their jobs, the 'chop bars' rely on us for their foods, even some of the animal rearers rely on us for animal feed' [Female, 42]

I am a farmer, my father was also a farmer and so too was my grandfather. Farming is what we have always relied on to make ends meet. The whole family invests a lot of time and money into farming. Unfortunately, in recent times, our efforts are in vain because the animals eat and destroy everything. [Male, 54]

Sometimes the pepper fences are effective and keep them out and sometimes they are able to breach the fence and enter the farms. It will be good if they eat and leave the rest; but they eat and when they are satisfied, they destroy the rest of the crops by stumping their feet on them. In seasons like that, I rely on my brother for upkeep. [Female, 55]

The revenue most farmers earn from selling their produce is often used to purchase services and commodities which they do not produce. As a consequence of the loss of income, they lose access to necessities, and their quality of life declines.

The money I get from selling maize and cassava is what we all rely on. Everything we buy is from money from the farming business, so it is difficult when the farm is raided by elephants [Male, 45]

I don't own this house, I pay rent every year from money I save from farming, it is my only source of income, so I do my best to guard the farm which is very challenging. They [wildlife officials] often talk about pepper fences but pepper is not cheap and even sometimes, they [elephants] are able to enter the farm when they see an opening [Male, 48]

Also, income gained from farming is often used to cover a range of household expenses such as children's tuition, books, uniforms, rent, and medical care amongst others. When crop-raiding deprives a farmer of economic stability, the livelihood of the whole family is impacted, including the aged. Also, in such circumstances, farmers are sometimes unable to buy materials needed to protect their crops. Thus, when a farm is raided, farmers lose both the money required to survive in the present and the income needed to diversify their portfolios for the future.

3.3. Physical health impacts

HWC has a direct physical impact on humans, as interactions with wild animals can be risky. In many rural communities situated near parks, deaths and personal injuries resulting from wildlife attacks are common (Ogra 2008, Lamarque *et al.* 2009, Binlinla *et al.* 2014). For example, in India, about 400 people are killed by elephants every year (Rangarajan *et al.* 2010), and in 2005, 157 crocodile attacks were recorded in the Caprivi region in Namibia (Lamarque *et al*. 2009). In Nepal, across Terai and Chure regions, for the period 2000–2020, there were 412 reports of elephant attacks on people (274 deaths and 138 injuries). Elephant attack victims varied in age from 7 months to 80 years, although the majority (71 percent) were adults between the ages of 25 and 64 (Ram *et al.* 2021).

However, during my research in the communities, I found no evidence of HWC-related injuries or deaths in the park archives. The participants, key informants, and park officials I interviewed were also unaware of any HWC-related injuries or deaths in the communities. In the mixed focus group discussions in Mfuom, participants attributed the absence of injuries and casualties to their knowledge of animal behavior passed on to them by their parents:

In my eyes, they are humans because they are protective of their babies, so I always keep my distance when I see them with their babies, and they hardly come to the farm alone. They always come around

with their herd, and that makes them braver. Whenever I see them, I am extra cautious and walk back home. [Male, 46]

When I see their footprints, I become very cautious. I am only a man; they can easily trample and kill me. Sometimes I try to be brave and drive them away, but when they do not move and begin to make too much noise, I go home because they might be telling others nearby that they are in distress. [Male, 55]

These creatures are bigger and taller than me and they are very intelligent animals. When I meet them on my farm. I stand at a safe distance and try to scare them away. They don't mind because they know I am scared and I will not harm them. So I usually call the wildlife officials, but most often nothing is done. [Female, 50]

Despite their rich knowledge of wildlife behavior and the absence of casualties, participants still expressed great worry and concern about the possibility of injuries and casualties from wildlife attacks in the future. They expressed their everyday dissatisfaction and fear. Thus, even the fear of elephant crop-raiding generates 'hidden' costs, regardless of whether an elephant raids their crops or not:

Nobody has been injured, at least not yet. Maybe that is why the government does not care, but no death and injuries today does not mean tomorrow will be the same. Someone will get injured someday, I know it; that day will come. [Male, 30]

We are afraid of being killed or injured. As for me, I will rather flee to safety than act brave and get killed. I have a family to take care of. There will come a day when someone gets attacked. [Male, 28]

Elephants are big. They can easily kill a human being. I have been farming in this community for many years and I have not heard that an elephant has killed anyone. Maybe you can ask the wildlife officials. [Female, 42]

Moreover, despite the absence of casualties, participants still expressed concern about stress and sleeplessness and the impact on their general wellbeing. Although stress and sleeplessness are a 'hidden' cost of HWC since it does not involve direct human-wildlife contact, as with mental health issues, physical injury and stress may all affect an individual's capacity to work, hence exacerbating their already poor circumstances. I observed that farmers in the communities engage in tedious labour on their farms during the day. These include tilling, weed and pest control, harvesting and selling their produce on the local market or to middlemen/women; and the lack of sleep due to guarding fields from their huts (Figure 4) at night causes them significant stress. I also observed that most of the farmers were exhausted and had a variety of symptoms, including weariness and bodily pains. They expressed concern about their lack of sleep and fatigue:

I don't get much sleep in the harvest season. I guard my farm day and night. I stay on the farm and do my best to drive them away when I see them. If I don't do that my family and I will starve. It is better for me to stay up in the night than go hungry. [Male, 50]

Crop-raiding is a well-known experience amongst local farmers. I ran into many proud, devoted, and industrious farmers like these. In Mfuom, I interviewed an old man; he was attending to his farm when I first met him. He showed me his cassava plants, which he used to make the staple dish fufu. His cassava field spread out in front of me, a mosaic of delicate stems and luscious green leaves that appeared to go on forever. When the wind gently swung the plants back and forth, the air smelled like earth. A few meters away, I could hear laughter and chatter. As I got closer, I saw his wife and two children painstakingly slicing through the thick, fibrous stems and roots with sharp machetes. Each cassava plant was set a few feet apart in a perfect row, and the stems and leaves were twisted together to form a natural canopy.

He was in tattered clothes as exhaustion creased his face. When I asked for an interview, he nodded in the affirmative. Despite his exhaustion, he spoke with quiet conviction as he responded to my interview questions, his words tinged with frustration and misery, and I listened closely. He described how the elephants occasionally destroyed his crops, almost leaving him with nothing. He sounded desperate as he stressed how powerless he felt in not being able to prevent the elephants from raiding his farm. He said his pepper fence and intimidation tactics only temporarily protected the crops. I sympathized with him as he continued his complaints. *'The elephants keep coming back almost every year*,' he added, pointing to the direction they usually come from. *'They ruin everything*.' He spoke with a frustrated demeanour and quickly added that other animals were also guilty. '*Not just elephants, birds, and even grasscutters sometimes eat the crops*', he remarked as we began to walk towards his hut.

The hut was made of bamboo and thatch tucked away on the edge of his farm. As I got closer, I was impressed. A fire pit made of clay barely decorated the floor as herbs and culinary tools hung on its bamboo walls. Despite its humble appearance, it was more than simply a structure; it played an essential role in safeguarding farms. He described how he keeps an eye out for any signs of elephant activity day and night, and makes noise or uses a torch to scare them away. *'This is my second home*,' he said, indicating the hut. *'I made it myself*.' I could feel his pride in making such a structure as he spoke.

After the interview, he showed us his neighbor's property, which had similar issues. I met his neighbour, a man in his early 50s. He greeted me with the traditional *akwaaba* and tossed a stone to scare some birds eating the dirt in front of his hut. He emphasised that the hut is effective in helping to fight human thievery and wildlife raiding. Despite its humble appearance, it reflected the resilience of farmers.

As I sat in his hut, I was welcomed by the smell of food; the ambiance was friendly and inviting. Like other farmers I spoke to, he recalled the grueling hours he spent in the fields to guard his farm. He spoke bitterly about the animals that had destroyed his crops. '*I work hard daily to secure these crops*,' he

yelled. *'Every year, the elephants destroy everything*.' Our conversation revealed how widespread the problem of HWC is in the communities. He also explained how he and other farmers had experimented with various crop-protection techniques. Yet, the wildlife could get through, resulting in significant crop losses. His words were tinged with frustration and anguish, and I listened solemnly.

While we talked about the animals and crops, the conversation moved along swiftly and intermittently light-hearted. Nevertheless, his wife spoke up; her voice tinged with agony. She frustratedly exclaimed, *'we are getting tired of talking. We want some action!*', referring to the inability of wildlife officials to find a solution to the problem. The exhaustion and frustration she felt showed on her face as he spoke. Her eyes were droopy because she had spent so much time and energy helping her husband to weed the farm in the morning. Even though she tried her hardest, she could not hide his disgust due to the continual threat posed by the elephants. The loss of their crops was much more than a minor inconvenience threatening their hard work and dedication. It was a terror that terrified their community's way of life and most of the farmers were eager to make their sentiments known.

I am always in pain and I don't sleep much. Look at me. I am old. I don't have much strength. I try to guard my farm when my crops begin to grow. Sometimes I am successful in chasing them back into the forest but most times I am unsuccessful because they are fearless. [Male, 62]

As old as I am, I do everything myself. I plant, guard, harvest and sell the produce by myself. I spend the little money I get on food and medicine for my pain. Sometimes I feel like giving up but if I stop farming what will I eat? [Female, 52]

Figure 4. A farmer's hut for relaxation and sighting of wildlife during guarding

Farmers often try different deterrent strategies. One of the most popular measures is the use of chili pepper fences. However, I discovered that pepper fences did not prevent significant crop loss in the communities, even when combined with other deterrent tactics. On many occasions, the fences were flawed. Elephant(s) evaded the flawed fences and continued to damage farms. This is unsurprising, given elephants' proclivity for circumnavigating obstacles when an opening occurs (O'Connell-Rodwell *et al.* 2000). For other farmers, chilli fences have been effective in deterring elephants. They use string barriers, often with many lines, fastened to tee-shirts laced with chilli and grease or engine oil (Figure

5). Although this strategy is popular amongst farmers, it is expensive for poorer families and can be very labour demanding during the rainy season. Although most farmers were aware of the use of bees in preventing crop-raiding, they are hesitant to use beehives as a strategy. The general sentiment is the fear of trying something new rather than a genuine phobia of bees.

Figure 5. New pepper fences (made from cloths, chilli powder, and grease) constructed around a maize and cassava farm.

Apart from the possible hazard posed by beehives, there is a huge potential for the sale of honey and honey-based products (especially if the park authorities collaborate with the International Stingless Bee Centre (ISBC), which is located just 10 minutes from the central park office in Abrafo). Bees give an abundance of items (honey, wax, propolis, etc.). This allows a small-scale farmer to offer a variety of goods from a single agricultural operation. These goods may also be 'converted' into value-added

products with minimum processing. For instance, honey can be produced into honey bread, honey beer, and honey candies. As with other bee products, honey has a high nutritive value.

Farmers and the ISBC can collaborate in a number of ways. For instance, through training, small-scale farmers may acquire secondary processing techniques for bee products with additional value (Fellows 2011a). The ISCB may also assist farmers in quality control and certification. Before bee products can be sold, they must be certified according to the Ghana Standard Boards regulations. This procedure entails inspection, analysis, and verification of factors associated with excellent processing and sanitary methods. Quality is a very crucial factor to consider. Importantly, the quality of bee products facilitates commerce, since inspections, such as those at international crossings are certified prior to being accepted in the target jurisdictions. In addition to health and safety, quality is vital to customers, and standards and certifications help build confidence when purchasing items.

The ISCB may also play a vital role in performing frequent market assessments to facilitate market entry. They can help to obtain knowledge about customers and discover new markets. The centre already sells a variety of products and has numerous customers, from whom it can obtain vital data for better marketing and competitiveness in the market. Consideration must be given to whatever strategy will offer the most benefits for both the centre and the farmers. Bee products, for instance, may be sold in part to a processor or to a wholesaler (Fellows 2011b). The quality of bee products must be maintained, and standards must be adequately conveyed to farmers. This will streamline commercial interactions. Exporting honey necessitates a heightened reliance on standards. The European Union, for instance, requires all imported honey to be verified as free of chemicals, antibiotics, and other residues. This becomes a significant limitation when entering export markets. Hence, the centre can also help in training farmers to promote capacity growth not just in terms of production quality but also in terms of processing. Consequently, such cooperation will be advantageous for all parties concerned.

The concerns of farmers regarding their physical well-being are worth noting because sleep deprivation and exhaustion are significant impacts of HWC, with possible consequences for morbidity (Pilcher and Huffcutt 1996, Harrison and Horne 2000, Orzeł-Gryglewska 2010). The medical literature shows that sleep deprivation results in physiological stress, which has a detrimental effect on the immune system (Hall *et al.* 2004, Meerlo *et al.* 2008). Also, higher stress and inadequate sleep may increase the risk of cardiovascular illnesses and death (Meerlo *et al.* 2008). Ultimately, when farmers suffer from more significant chronic sickness and have weakened immune systems, their capacity to farm or engage in income-generating activities is limited, thereby putting more stress on the entire household.

3.4. Mental health impacts

When it came to mental health stressors, most participants said the activities of elephants had the most impact on their mental health, citing chronic fear and worry. According to farmers, elephants and the destruction they caused to their farms made them uneasy, which had a detrimental influence on their mental health. These fears and anxiety stem from the possibility of injuries or death from physical attacks from elephants. These fears are understandable as human casualties are the most severe manifestation of HWC. Although the raiding of farms and loss of crops through raiding may be accepted, the loss of human life might elevate the conflict to a new level. Even a single death, I surmise, may worsen the already fragile animosity between the locals and the park officials, and retaliatory wildlife killings may escalate, undermining the primary aim of the park – which is to conserve biodiversity.

These animals are unpredictable, and I fear them. I am not ashamed to admit it. They are scary. I fear they might attack me or even my neighbors. [Male, 40]

Elephants can easily kill or injure you. I am in constant fear when I go to guard my farm. I fear they might destroy all my crops and I fear they might also hurt me. They are animals and you can't tell what they will do. [Male, 38]

Last year, I was nearly injured by an elephant on my farm. I was trying to chase them away but one of them charged at me. I got scared and ran. Every time I go to my farm to work. I still fear a little. [Male, 45]

There is also anxiety and fear of losing large parts of the proceeds of their farms because of the amount of damage the animals can cause.

I am in constant fear of losing all my crops in a single night. I am scared that all my effort will be futile, and I would have laboured for nothing. My family and I have laboured a lot in planting some plantain and maize. We expect a good harvest, but I also fear we might lose everything when they come to the farm. [Male, 38]

My fear is that I might wake up and all my crops will be destroyed by elephants. I try to guard my farm as frequently as I can. On days that I am not able to guard I still can't sleep because I am always thinking if the elephants are on my farm or not. [Male, 45]

It is not just me. My neighbours too. All of us are fear we might lose everything in one day. We share the same boundary so I know when they raid his farm, they will raid mine too. We try our best to prevent them by using pepper fences. Sometimes they are repelled by the pepper fences and sometimes they find an opening into the farm. [Male, 55]

In addition to concerns about food security and the risk of injury and death, participants also complained about stress and tiredness. According to the farmers, they put in much work both day and night in providing diligent field security to dissuade raiding elephants. Consequently, the lack of sleep caused by securing fields at night causes extra stress.

I have no idea when they will come. Sometimes they come to the farm when I am around, and sometimes, they come when I leave. I do not get any sleep, especially when my crops begin to mature. [Male, 45]

It is better for me to lose sleep than lose my crops and worry about feeding my children. I am always tired because I do not sleep. I guard in the night and sometimes in the day. I am a healthy person, but I feel tired, and it is all because I do not get enough sleep. [Male, 50]

Others made the connection between lack of sleep and their physical health. Here is how one farmer expressed it:

I am aging faster; I can feel it because I do not rest or sleep enough. I wish I could get enough sleep and just enjoy life, but I cannot. There is no doubt that I will be happier and healthier if I get enough rest. [Female, 55]

The fact that she is impoverished severely limited her capacity to cope. Many others are in a similar position. In KCA, many interviewees in Abrafo voiced persistent anxieties or concerns, suggesting elevated stress levels and poor mental health conditions. These persistent fears and concerns were specifically linked to possible physical health consequences such as injuries and the possibility of casualties in the future. Elsewhere, the mental health impacts discovered can be more severe. For instance, Chowdhury *et al.* (2008) reported that around half of the women who lost spouses to tiger and crocodile attacks in India's Sundarban experienced psychological issues as a result of their inability to reclaim their loved ones' remains for proper funerals. Numerous individuals had significant rates of suicide ideation and depression. Jadhav and Barua (2012) revealed that elephant-related injuries, fatalities, or physical threats exacerbated pre-existing medical disorders and contributed to the development of new ones including post-traumatic stress disorder. The mental health impacts can extend to the families of direct victims as families may experience worry, despair, or other psychological impacts if an elephant attack disables or kills the family's primary breadwinner or other significant person or persons (Ogra 2008, Barua *et al.* 2013).

3.5. Problem drinking

Crop-raiding by elephants has a cascading effect, amplifying existing problems such as problem drinking. Participants in the all-male focus group in Mfuom made the connection between HWC and the abuse of alcohol. I also observed that farmers, both young and old regularly abused '*akpeteshie*,' – a popular homebrewed alcoholic spirit made from palm wine or sugar cane juice (Figure 6). Women drank as well but to a lesser extent as compared to men. According to some of the participants, the intensity and frequency of HWC is a contributing factor in their excessive abuse of alcohol. According to one farmer:

I drink and think about how to provide for the family, the farm is my everything. When it is destroyed by elephants, life becomes very challenging for me and my family. [Male, 54]

Other residents of Mfuom remarked:

When I drink, I become a bit fearless, I become more active, and I am able to keep wake and guard better. When I am able to do so, I protect my crops and drive them away when they come until my crops are harvested. [Male, 45]

Drinking akpeteshie has become part of me. I can't go to the farm to guard without drinking. I am not a coward but I am fearful of elephants just like everyone else. Drinking akpeteshie takes some of the fear away and I am able to guard the farm till daybreak. [Male, 45]

Akpetehie is not a bad drink. The ones produced here are good and potent; and it helps me to stay awake and protect my farm. I am not the only one. A lot of the farmers in this community take akpeteshie. [Male, 50]

Figure 6. Mass palm wine and *akpeteshie* production on a palm plantation

Culturally, in the communities surrounding the park, men are expected to be the breadwinners of the family, and the inability to do so comes along with a certain stigma. As a result, some of them use alcohol as a coping mechanism to deal with the discomfort associated with the loss of their livelihood by regularly visiting pubs or *beer bars* [4]as they are locally called. The participants claimed that drinking *'akpeteshie'* gave them the confidence to drive away elephants from their farms, a perilous task that

[4] A small to medium-sized establishment where people congregate to unwind, talk, and enjoy beers other alcoholic beverages, typically in a casual and relaxed ambiance.

requires substantial risk. I surmise that the excessive consumption of '*apeteshie'* in the process of guarding fields is counter-intuitive and increases the risk of elephant-related casualties and injuries. This is because *akpeteshie's* standardized alcohol volume is between 40% and 50% (Akyeampong *et al.* 1999); and its excessive consumption has a profound effect on the senses resulting in behavioral disorders such as loss of self-control and awareness; and compromised judgment during guarding could potentially prove fatal.

The nature of *akpeteshie* is represented in its vernacular names: '*kumi preko*', which literally translates 'kill me soon'. This insinuates the role of alcohol in serving as an escapist, whisking individuals away from the rigors of everyday challenges. At other times, it is referred to as '*keka bi kyere wase*', which literally translates as 'speak your mind to your in-law,' emphasizing its ability to induce aggressive behaviour and increase self-confidence in order to speak one's mind irrespective of who is on the receiving end. Some of the participants were more candid in submitting that the excessive consumption of alcohol gave them the confidence to confront the park officials for their inability to put in effective management measures; although some officials try to help farmers by erecting pepper fences (Figures 7 – 10). According to one farmer:

I just go to the bar, drink, and try to forget about everything. I can only deal with them when I drink. I also boldly and adequately guard my farm after drinking. Those animals are big, but I am fearless when I drink. Drinking is good. It helps me a lot. [Male, 40]

A middle-aged man in Abrafo also stated:

I cannot look into their eyes and insult them. I know them. We live with them; it is a shame I have to confront them. I can only tell them my mind when I drink. They are lovely people, and I do not want to

cause trouble, but I also have to protect my livelihood, so I go there to tell them how I feel after drinking

[Male, 48]

Figure 7. A wildlife official helping farmers to mix engine oil and chilli powder on used cloths for pepper fences.

Figure 8. A wildlife official helping to erect poles around a farm for the construction of fences.

Figure 9. Wildlife officials helping farmers to erect ropes and bells around a maize farm (acoustic deterrents)

Some farmers in Mfuom also elaborated on how alcohol boosted their confidence in confronting park officials:

We cannot kill the animals, even when they raid our farms. We are told to go to the wildlife office in Abrofo to file a report. Most often they only come to see the damage but they don't solve the problem. I know most of them in that office and I can only show them my temperament when I drink. [Male, 50]

Figure 10. A wildlife official helping women to mix chilli powder and grease for pepper fences on a cocoa farm (Olfactory deterrents)

When I drink I can say a lot of things on my mind. I am not a violent person but I can be aggressive. I feel the officials don't see how serious most of us are about this issue. I drink and go and complain to them. I say a lot of things. Sometimes I insult them and I can only do so when I drink. [Male, 55]

The significance of alcohol as a 'coping mechanism' in HWC-related risks is important but not unexpected because alcohol misuse is highlighted from a social learning viewpoint as a regular

maladaptive coping response (Abrams and Niaura 1987, Maisto *et al.* 1999). People who have limited coping options are more prone to drink in response to stressful events or conditions in their daily life. Thus, dependence on increased alcohol use to alleviate distress has been linked to a decreased chance of sobriety (Smith *et al.* 1993). These corroborate Maisto *et al.* (1999), who found that when an individual's alternate coping mechanisms are limited, alcohol usage rises in stressful conditions. The hazard associated with this form of drinking is that it jeopardizes family bonds and marital relationships. This was emphasized by many female participants, who noted that although drinking *akpeteshie* may provide their partners with temporary comfort, it merely helps them become negligent spouses.

Akpeteshie is frequently enjoyed in social settings. It is known for its potent flavour and high alcohol content. I was astounded by the presence of *akpeteshie,* and its cultural significance in the communities. I had the privilege of accompanying one of the distillers as he went about his duties. Fermented palm wine wafted across the air as we strolled past the layers of felled palm trees. Some of his colleagues were busy tending to the flames that are used to boil and distil the palm wine. They first collected fresh palm wine from felled palm trees with a tapping tool. The palm wine was then moved to a sizable barrel and boiled to distil the alcohol. The simplicity and competence with which they made such a vital and cherished local drink is astonishing.

The drink was used for traditional healing and hospitality. Many rural farmers opened up about how drinking affected their families. From our conversations, most of them knew the risks of drinking but considered it essential to their life and work. '*Drinking makes me more active and brave*,' one farmer I interviewed admitted. According to him, *akpeteshie* helps him to stay awake and alert so he can watch over his crops and drive away animals. *Akpeteshie* is more than just a drink; it serves as a marker of cultural pride and identity. They frequently shared the drink with friends and neighbours to show hospitality and foster friendship. Some of the farmers doubled as *akpeteshie* distillers. They played a

significant role in the manufacturing, distribution, and sale of *akpeteshie*, making it a substantial contributor to the local economy and giving them an essential source of income.

My first taste of *akpeteshie* in Abrafo was unforgettable. I strolled through the community and followed the faint sound of high-life music coming from a small, barely illuminated structure. The day was ending; as I made my way to the local *beer bar*, I was welcomed inside by a group of farmers gathered around a plastic table, telling tales and sipping various beverages. I accepted their invitation to join them. The bar was dim; high-life music, chatter, and posters filled the air. The bartender was occupied serving drinks and responding to the requirements of the patrons. A handful of plastic tables and chairs were dispersed throughout the small, dimly lit bar. Posters and advertisements for various alcoholic brands decorated the walls.

I received a cordial welcome as I stole glances at the small bottle containing the evening's main attraction. I was forewarned that the drink was very potent and had freshly been distilled. I graciously nodded as I accepted a little cup of *akpeteshie,* eager to participate. I could smell its potent, fruity aroma as I brought the cup closer to my lips. The flaming liquid burnt my throat and warmed my chest as I took a tiny sip. Its unusual taste lingered on my tongue and gave me a burst of energy as I instantly began to delve into the subject matter of HWC.

One of them, a farmer in his mid-50s, who sat opposite me, began talking openly about his experiences with HWC and problem drinking. He had lost hope in being able to safeguard his crops from wildlife despite his best efforts. He turned to alcohol for momentary comfort from crippling tension and anxiety, which gradually turned into a regular habit. His tale was not unique. Similar stories of hopelessness were told by other locals, who described how living close to protected wildlife areas has contributed to them turning to alcohol as a coping mechanism.

As the evening continued, the topic suddenly switched to the Covid-19 epidemic. '*I heard consuming alcohol can treat the new disease'*, one man said, referring to Covid-19. Knowing there was no scientific evidence, I was astonished. I realized they believed some of the rumors and misinformation as I listened. Many struggled to distinguish fact from fiction. *'It is hard to know what to believe'*, one woman said. While I listened, I recognized that misinformation was a big problem. The rapid spread of rumours across the neighbourhood means that some residents took drastic precautions to protect themselves, such as abusing alcohol or taking herbal concoctions that had not been scientifically confirmed to be effective against Covid-19. Misinformation regarding COVID-19 was rife, and for those that already abused *akpeteshie,* believing alcohol is a cure to the virus was the last misinformation they needed.

I observed the community's mood during the Covid-19 outbreak. The village folks experienced a significant degree of dread and uncertainty during the beginning of the pandemic. There was also general apprehension and worry about how the virus may affect the country. Notwithstanding these challenges, there was unity and resilience in the face of adversity. For instance, the villagers constantly used *veronica buckets,* placed at vantage points. The *veronica buckets* provided by the village committee were placed in open spaces, next to businesses, marketplaces, churches, and other vantage points as conspicuous reminders of the value of handwashing in halting the spread of the virus. I was astonished by the sense of camaraderie and togetherness in such challenging times.

Many farmers emphasised how the pandemic had made matters worse. Due to travel restrictions, many farmers sold their produce at reduced prices. One farmer told me that Covid-19 restrictions had shuttered numerous local eateries and made it more difficult to transport her farm produce to surrounding towns and cities. She had to sell her produce locally, typically at lower prices. She described their struggles. '*The lockdown worsened everything*,' she added. '*We are in constant battle with these animals to save*

our farm, and now we have to fight a disease we don't know anything about.' She seemed frustrated that the pandemic was worsening and derailing their efforts.

3.6. Diseases

Farmers in the study area said they utilized a variety of conventional methods to minimize or control crop loss. These include guarding, pepper fences, fires, burning car tires, and the use of scarecrows amongst others. Guarding was the most prevalent approach utilized. It was particularly somewhat effective in protecting food staples such as maize throughout its developmental stages. This finding is similar to those in Zimbabwe and Ghana (Gandiwa *et al.* 2012), where guarding was ranked first in protecting crops during the farming season. Although guarding was a principal approach for preventing damage to crops, it is a time-consuming task. During the mixed focus group discussion in Mfuom, some farmers said protection was provided all year for farms but intensified when the crops start flowering until they are harvested.

On average, during peak crop-raiding months, men spent three times as much time (5-6 days) protecting their farms every week than they did at other times of the year. Crop guarding was mostly done by men. In all eight communities, some interviewees admitted that some of their children under the age of 18 also helped in guarding farms. Some participants indicated their children mostly guarded on school vacations, public holidays, and weekends. In Uganda, similar research revealed two-thirds of all farm guarding activities were undertaken by women and youngsters between the ages of six and twelve (Hill 2000). According to participants of my focus group discussions, in their bid to protect their fields against crop loss, they become vulnerable to mosquito-borne illnesses like malaria. This is not unexpected. Indeed, studies conducted in India show an overlap between malaria-infested areas and human-elephant conflict (Dhingra *et al.* 2010). Participants of the focus group discussions emphasized the connection between guarding and exposure to mosquitoes. A woman during focus group discussions put it this way:

No one is exempt. We all get malaria; it is not a good feeling, but we are used to it. The mosquitoes are everywhere, both on the farm and at home. [Female, 40]

Another woman remarked:

Malaria is very common. That is the major disease we struggle with. It affects everyone in the community. Although we know what to do to prevent it, we are helpless. [Female, 33]

Men also expressed similar concerns:

There are lots of mosquitoes and other insects on the farm. Staying on the farm to guard, especially in the evening and at night exposes us to lots of bites from mosquitoes. [Male, 60]

I guard my farm by staying in my farm hut. There are lots of mosquitoes. Even this year alone, I have had malaria two or three times already. The mosquitoes are everywhere, especially in the rainy season. [Male, 45]

Malaria has a significant financial impact on people and families. When individuals are bitten by the *Anopheles* mosquito, they get ill. This takes the shape of physical pain, emotional distress, and lost leisure time owing to sickness. It has a detrimental effect on one's health and finances, resulting in destitution. Malaria imposes a greater burden on poorer and more vulnerable families, particularly when the ill person is the breadwinner of the family. Additional household duties may be diverted away from economic activities in order to care for sick relatives. Also, time off work results in a decrease in family income, further impoverishing poor families.

The process of getting therapy imposes a financial burden on families in the form of treatment and prevention expenditures (Asenso-Okyere and Dzator 1997, Snowden 2016, Patouillard *et al.* 2017). During the illness, the person may be unable to work totally or may work partly owing to the disease's

debility on a temporary basis. Such circumstances might have a detrimental effect on household productivity (Asiamah *et al.* 2014). Foregone income through opportunity costs associated with contracting malaria and seeking treatment contributes to poverty at the household level. Thus, time and money in seeking treatment or purchasing medications is a significant indirect cost component (McElroy *et al.* 2009, Ibrahim *et al.* 2017).

Nestled among lush green vegetation and fertile lands lies Abrafo, which is the gateway to the park. A key informant and his household accommodated me. The hospitality, research data, contacts of key informants, and insight into the local culture that I got, thanks to the family, are invaluable. Their strong sense of hospitality and unity reflects the togetherness permeating the village. The villagers' contagious smiles convey a sense of community and friendliness that transcends barriers. Villagers frequently traded stories, jokes, laughter, and goods and crafts in an atmosphere of harmony and cooperation. There is a strong sense of community and collaboration throughout Abrafo. The inhabitants consistently commit to their shared identity and ideals in a world where individualism frequently takes center stage. They exemplified the strength of unity in overcoming obstacles and building a dynamic, peaceful community via shared experiences and mutual support especially during the Covid-19 pandemic.

I observed how the pandemic exacerbated HWC, creating more hardship for the villagers. As the Covid-19 pandemic spread across the globe, the effects were felt even in these remote parts of the world. Coronavirus illness (Covid-19) is caused by SARS-CoV-2 (Severe Acute Respiratory Syndrome Coronavirus 2). Around 200 countries have been infected since late 2019 in Wuhan, China. On 11 March 2020, the WHO labeled the outbreak a pandemic because of its frightening spread and intensity. Within 12 months, 120 million illnesses and 2.65 million deaths were reported (Gibbons *et al.* 2022). This is the most significant worldwide health crisis since WWII. Covid-19 threatened millions of lives and

devastated global economies. Most analysts believe the virus originated from Wuhan's market. How the virus spread from animals to humans is unknown.

Governments quarantined, socially isolated, locked down, closed borders, and restricted movement to slow the pandemic's spread. Ghana was no exception. These policies have greatly affected the communities and hindered conservation in numerous ways. Patrolling and enforcement was lowered. The loss of rural livelihoods and rising poverty contributed to increased illegal hunting. Thus, some of the farmers took to illegally hunting wildlife to survive. There is evidence of a spike in illegal fishing and wildlife persecution in other African and Asian countries as a result of Covid-19 (Bennett *et al.* 2020). For example, endangered green sea turtles (*Chelonia mydas*) were killed in the Comoro Islands (Gibbons *et al.* 2022). In Argentina and Indonesia, economic downturns increased illegal fishing due to fewer patrols and ship observers (Bennett *et al.* 2020). The economic effects of the Covid-19 lockdown put thousands of ecotourism jobs in jeopardy. Although poaching and wildlife trafficking persisted nationwide before the coronavirus pandemic, it intensified because wildlife officials were forced to stay home. Some park officials were also concerned that Covid-19 travel restrictions might exacerbate conservation funding difficulties. This is because the pandemic and relief costs have caused significant budget issues for governments, and will force policymakers to cut 'non-essentials.'

With the onset of Covid-19, tourism came to a standstill. Many farmers who relied on the income generated from tourism-related jobs were in a difficult position. Desperate to make ends meet, some turned to hunting bushmeat. A family I interviewed in Abrafo exemplified the position most farmers were in during the pandemic. The dark clouds partly disappeared, allowing the sun's rays to shine down upon the village as I made my way to visit a farmer and his household. The family earlier spent their morning on the farm. After the usual pleasantries, he proudly showed off his catch, which included a

big grasscutter and a squirrel. I sat next to him on a wooden stool in his outdoor kitchen as he bragged about his hunting activities.

His outdoor kitchen had a few pots, wooden spoons, and cutlery dangling from the mud walls. A big fire pit surrounded by stones held a big pot in the center of the kitchen. Ripped plantains, cassava, and herbs are neatly arranged near the kitchen entrance. He takes the grasscutter—and starts to prepare it. The smell of meat began to fill the air as he butchered the meat into small pieces. According to him, he has been battling with wildlife for several years, as elephants mostly storm his farm in the harvest season. He felt compelled to intensify his hunting activities to supplement his family's food requirements. '*The elephants destroy all our crops, and what do you expect us to eat?*' I listened attentively as I became captivated by the challenging and complex choices, he and others in his position must make. After interviewing him and his wife about HWC, gender roles, and management measures, his wife began to raise concerns about the high rates of young unemployment in the community. She recounts how joblessness has affected young people in the village. Looking in the direction of the wildlife officer who accompanied me, she pleaded for his son to be hired. She passionately argued that if her son was employed, he could support his family and help conservation efforts. The wildlife official, caught by surprise, could only nod and calmly and diplomatically explained, *'We are trying to come up with a solution, yet it is challenging, and regarding your son, I will contact my superiors and see what they will say*'. The hunter's sentiment was shared by many of the locals who feel that the impacts of HWC such as fatigue and malaria, coupled with unemployment and Covid-19 make their standards of living worse.

3.7. Summary

In KCA, just like other HWC hotspots in Africa, crop-raiding has negative impacts on lives and livelihoods. In many households, crop-raiding by elephants has a negative impact on food availability

and economic stability in communities. While chronic hunger did not seem to be a concern, residents expressed concern about the inability to meet nutritional requirements due to the impact of crop-raiding on food supply. I also show how HWC has a negative impact on people's physical and mental health, as shown by stress, weariness, worry, anxiety, and concern. Anxiety and fear were the most often mentioned mental health issues. These concerns and anxieties originate from the prospect of being harmed or killed by elephants.

Further, individuals are drawn to alcohol as a maladaptive coping technique in their daily life and attempts to limit HWC and reduce crop-raiding result in an increase in sickness and fatigue. Aside from the more visible effects of food insecurity and economic insecurity, this chapter analysed how crop-raiding causes various subtle kinds of vulnerability, both short- and long-term. Farmers, for example, who protect their fields against crop loss are more vulnerable to mosquito-borne diseases.

Chapter 4 – Social and gender-differentiated impacts of human-wildlife conflict in Kakum

4.1. Introduction

This chapter addresses the first part of research sub-question 1, namely, 'How are the impacts of HWC differentially borne by men and women in the communities near the Kakum Conservation Area?' I discuss the nature of community values and norms and how they are held in high regard. In KCA, I observed that the socio-cultural system is patriarchal in nature, and the shared values and norms have a significant influence on shared expectations about the traditional roles ascribed to women and men. The unequal distribution of labour is attributed to cultural expectations, biological and physiological differences, and religion. The effects of HWC reflect the gendered distribution of labour. For instance, women are overburdened with an increased workload, and men are forced to participate in illegal activities such as poaching.

I discuss how poaching has become a profitable and more enticing alternative due to crop-raiding. The prosecution of locals for unlawful park access and poaching has exacerbated social strife, disharmony, and hatred between residents and park authorities. I observed that the relationship between authorities and residents is tense since farmers believe the government is more concerned with the welfare of the park's animals than with the welfare of rural people.

Farmers sometimes overlook institutional measures intended at curbing crop-raiding in this climate of antagonism between authorities and people. Farmers' distrust of local governments, as well as widespread corruption, is aggravated by the system's inefficiency, which leads to a lack of motivation to utilise institutional channels. I also examine how crop-raiding results in opportunity costs and affects community cohesiveness by disrupting the social status of certain farmers. I document that in KCA,

crop-raiding also undermines community cohesiveness by interfering with farmers' social mobility. Children's education is harmed over time as a consequence of frequent absence.

4.2. Out-migration, increased workload, and prosecution

In KCA, cultural values and norms are held in high esteem. These 'dos and donts' are related to beliefs about conventions, traditions, and value systems. The socio-cultural system in KCA is patriarchal in nature. The subordinate position for women manifests itself in inequities between men and women at the family and communal levels. Women are relegated to the roles of home managers, seen as 'weak', and lay little stress on personal interests, placing men's interests above theirs. They are also often seen as 'helpers' rather than equal partners to their spouses.

The gender division of labour is established by the informal constraints which influence the kind of work that women and men do at home and in the community. As a consequence, women's activities and obligations are linked with the private sphere, while men's are connected with the public realm. This also means that women's job is often undervalued, thus limiting their options and choices.

'Here (in this community), many women are involved in trading and also help their spouses in farming. However, men take all the credit when there is a bountiful harvest.' [Female, 48]

'"Men and women both engage in similar economic duties, and women raise children in addition to their jobs. Our men don't see how challenging it is because that is what is expected of us' [Female, 36]

In many instances, in addition to the labour that was done around the home, women worked alongside their husbands in the farms and participated in other economic activities; nonetheless, they felt that the work that they did was not properly acknowledged. Participants in the all-women focus group reported that, despite the fact that women were involved in farming and other economic activities contributing to the generation of income for households, this contribution often goes unnoticed.

As the following example demonstrates, one of the most critical components of gender-differentiated connections to the environment is the division of labour. For instance, men engage in hunting while women gather firewood, which is mostly made up of fallen branches. They are also more likely to gather medicines, fodder, wild herbs, or fruits for household use as well as utilise the items to feed, shelter, and heal their families more often than males.

The division of labour, in conjunction with norms, establishes the assets to which women and men have access. Women frequently lack equal access to and control over assets, placing them at the mercy of their husbands or other men (e.g., brothers), limiting their decision-making power and ability to implement strategies to deal with the impacts of HWC. For instance, cultural constraints or routine tasks such as childcare restricts women's mobility. Due to the gender division of labour, most women are unable to leave their houses to attend seminars and meetings organised by park officials.

In KCA, I observed that shared values and norms significantly influence shared expectations of the customary roles ascribed to women and men. The differentiated labour is attributed to cultural expectations and, biological and physiological differences. The general consensus in most of the communities is that men are considered physically stronger hence it was the men's responsibility to participate in activities such as constructing the fences and guarding. Participants in the focus group discussions expressed the belief that men should undertake ‘heavier’ chores whilst women are supposed to do ‘light’ activities. This perception conflicts with the physical and tiring demands of some of the chores that were ascribed to girls and women such as fetching fuelwood.

Despite the conservative nature of cultural values in the communities, comments by some of the participants also revealed a gradual shift in norms. According to some of the aged participants I interviewed, the norms surrounding the gendered division of labour are becoming slightly more lax;

"My grandparents told me that in their day, it was uncommon for husbands to cook. However, these days, things are changing gradually because men are increasingly taking up domestic responsibilities like cooking and cleaning.' [Female, 60]

"When we were growing up, boys were hardly allowed to be in the kitchen. But today things are different. Even certain activities like fetching water was a role for girls but these days both boys and girls are obliged to fetch water for their households " [Male, 59]

'It is now more socially acceptable for women to participate in productive and income-generating activities so long as such activities allow them to balance motherhood and other domestic responsibilities'. [Female, 62]

'In today's society, some men and boys do participate in certain home duties. However, there are still some men who continue to think that it is a demotion of their masculinity to be seen performing some domestic chores. [Male, 58]

Some interviewees also attributed the division of labour to religious devoutness due to their faith as practicing Muslims and Christians. This is unsurprising because (i) major religions sprang from patriarchal civilizations and retain patriarchal structures and doctrines (Klingorová and Havlicek 2015) and (ii) many religions have historically been a significant factor in the formation and maintenance of inegalitarian gender standards (Morgan 1987, Kalmijn *et al.* 2003). Research has shown that religious beliefs and practices have an effect on gender roles. Religious individuals are more inclined to be in

favour of gender division of labour. For instance, through its pulpits, Christianity supports and spreads traditional gender ideology, labeled 'complementarianism,' in which breadwinner/homemaker positions are upheld.

Religion and family are inextricably linked. Religion symbolically legitimises the family as an institution, while the family socialises children in the religious traditions and doctrines. Religious traditions serve as a source of gender norms determining who is liable for home labour and who is answerable for financial assistance (Christiano 2000). The majority of Christian theological traditions advocate for preserving traditional family structures and gender division of labour (Gay *et al.* 1996, Sherkat 2000). In my interaction with participants, most of them highlighted the denomination's teachings via marriage ceremonies that women are subject to men and favour a traditional division of home labour. Thus, individuals with strong religious faith are more amenable to division of labour since they are more prone to engaging in responsibilities backed by the church.

Even the Bible says that the man is the head of the house and the Bible also encourages us to submit to our husbands. These are not my words but written in the Bible. I am not saying he makes all the decisions but he leads the household and provides for me and the children. [Female, 53]

I do my part to support my husband. He is my husband, his job is to lead and my role is to follow and support him as it is written in the Bible. That is why I also have my business and although it is not lucrative, it supports my husbands' efforts in keeping up the household. [Female, 42]

I am a devoted Christian. I am not perfect but I try to live by the teachings of the Bible. The Bible encourages husbands to fulfill their marital duties to their wives, and likewise the wives to their husbands. I try to perform my duties as a wife and my husband also performs his duties. [Female, 45]

I have my responsibilities and my wife has hers. These roles are even written in the Bible. The Bible says, Husbands, love your wives, as Christ loved the church. It also says wives should submit to their husbands in everything. [Male, 55]

The ascription of gendered roles to religion is not surprising because of the level of spirituality amongst Ghanaians. Ninety percent of Ghanaians are religious, and the biggest religious movement is Pentecostalism (GSS 2012). Pentecostal churches and preachers, in addition to their advertisements on television, may be found in the market squares, *trotro*[5], and radio, as well as in residential neighbourhoods. The fundamental idea of Pentecostalism is predicated on the notion that there is a 'final destination', hence, the daily living of followers of Pentecostalism is centred on the idea that they are destined by God to live a long and prosperous life (Onyinah 2002).

Aside from Pentecostalism, there are various religious movements that use both social media and mainstream media in marketing their services (Meyer 2012). One can hardly escape from their reach, the airwaves in Ghana are teeming with various types of spiritual consultants, such as Christian preachers, Muslim spiritualists (also known as *Mallams*), traditional fetish priests (also known as *Akomfo*), and juju men, all of whom are constantly reminding people to live according to certain doctrines. Many scholars have theorized the reasons for the proliferation of religion in developing countries. For instance, in these kinds of under-developed settings, religion acts as a hedge against the devastation that might result from adverse life circumstances, such as losing a job, losing a loved one, or having financial difficulties (Chen 2010). Mochon *et al.* (2008) found that active engagement in religious and spiritual practises has the potential to both enhance the benefits of good experiences and attenuate the impacts of bad experiences. In addition to this, religion provides a buffer against the

[5] Privately owned minibus share taxis

unfavourable parts of life and a beacon of hope for a fulfilling existence (Di Tella *et al.* 2010). Thus, the critical role that religion plays in the lives of residents means that it is not unreasonable to ascribe gendered roles to religion.

In KCA, values and norms relate to shared expectations, often maintained by social approbation. Most of the locals believe that women are responsible for all home activities. Thus, care labour was associated with women's identity and self-worth. For children, the locals I spoke to stressed and emphasised the necessity of early modelling behaviour – for example, girls are expected to be with their mothers and acquire the same obligations. Also, for children, corporal punishments were given for disobedience and to reinforce anticipated behaviours.

The locals believed that relatively few people in their society would welcome male engagement in household tasks. They classified certain chores involving direct care of people as being especially demeaning to men and undermining their manliness – for example, changing diapers or washing toddlers. Second, engagement in care work had ramifications not only for how such men were seen (as weak), but also for how their relationships with their spouses were perceived. For men, their worth hinges on the fulfilment of their role as providers whereas if they did not have productive work, they were perceived as 'lazy'. Men engaging in household tasks tended to be seen differently depending on whether they performed their duty as providers. Several locals suggested that women are supposed to engage in 'light' tasks while males should do 'heavier' duties. Women who abstained from household responsibilities, even if they were engaged in other economic activities, were labelled 'lazy' and this affects their marriageability.

Other care responsibilities – particularly bathing children, laundry, diaper changing, sweeping the home, and cleaning are deemed to be the least acceptable for men. Participants emphasised the visible nature of these duties and their humiliating nature. Some participants emphasised how embarrassing these

responsibilities were due to how these activities are perceived. Men who took part in such activities risked humiliation and the perception that they are 'weak'. However, there is an increase in men's engagement in care duties when their wives were unwell, pregnant, or nursing children. This happens only if there were no other women or adult children at home who could fill in.

'Men should not be expected to do things like changing diapers, bathing the children, or cleaning the home.' [Male 45]

'I agree that women need help with domestic chores. Nevertheless, I do these responsibilities when necessary and of my own free choice under extraordinary circumstances, such as when my wife is not in good health.' [Male, 42]

'Men are expected to be the primary breadwinners in their family, they are not permitted to do tasks traditionally reserved for women. When they do so, they give the impression of being weak.' [Male, 50]

In KCA, gender norms are rigid. Residents view men's and women's tasks and obligations differently. Men are considered the 'breadwinners' and hence are responsible for undertaking income-generating activities. Women are primarily expected to engage in household subsistence activities such as care for the home. In the male focus group discussion conducted in Mfuom, participants emphasized that when food security is threatened due to crop-raiding, they are increasingly pressured to pursue other economic opportunities to feed their families, given their traditional roles as family 'breadwinners'. Sometimes, in their bid to provide for the family, they enter the forest illegally to poach or assist non-residents in poaching, where they risk confronting wild animals or forest guards. When arrested in the process, their tools are confiscated, and they are prosecuted. The expenditures they incur in the process, such as fines, have a detrimental effect on the family's finances, while jail sentences are more disastrous to their

family's welfare as roles are re-assigned, and women take on extra responsibilities. Thus, women disproportionately bear the brunt of increasing workload (Table 4) in the household due to division of labour as women perform their traditional roles, care for the household and undertake traditionally male responsibilities such as erecting the pepper fences.

The impact of HWC on men
Increased Physical Risks: Men guarding fields from wildlife, especially during night hours, can face direct encounters with potentially dangerous animals. These situations can lead to physical injuries or even fatalities. Also, the need to repair damages, rebuild structures, or replant crops can lead to increased physical labor, potentially resulting in exhaustion, injuries, or long-term health issues related to overwork. **Economic Burden**: Men are the primary earners. HWC imposes significant economic burdens on them. In cases of severe crop loss, men are forced to seek alternative means of income to support their families. This could mean taking on additional jobs or tasks, thereby increasing their overall workload. **Psychological Stress:** Crop-raiding can lead to significant economic loss. If a man's livelihood and his ability to support his family are tied to successful crop yields, the uncertainty and potential devastation caused by crop-raiding can cause severe psychological stress. The constant threat of wildlife intrusion and crop destruction can lead to persistent fear and anxiety. **Increased Workload:** After wildlife raids, men often have to spend significant time repairing damages. This can include fixing broken fences, replanting destroyed crops, or rebuilding storage facilities. Also, to prevent future raids, men sometimes increase their vigilance. This can involve staying awake during night hours to guard the fields, constructing and maintaining physical barriers, or implementing other deterrent measures.

The impact of HWC on women
P**sychological stress**: Women often bear primary responsibility for food provision and preparation. Crop-raiding by wildlife can lead to significant food shortages, placing stress on women to find alternative sources of food or to make do with less. Women also experience stress related to safety concerns. They may fear potential encounters with wildlife while carrying out daily tasks in or near the park. **Increased Workload:** Women are often responsible for providing food for the household. When crops are destroyed, they spend more time preparing alternative meals, or even traveling farther to markets or other food sources, which increases their daily workload. Also, when crop loss results in a significant decrease in the family's income, women engage in additional income-generating activities, such as petty trade or casual labor, to compensate for the loss. Furthermore, women take on both domestic and agricultural tasks when men migrate in search of economic opportunities. **Personal Safety and Freedom of Movement:** Women are often responsible for tasks such as gathering water, firewood, and food, or farming small plots of land. These tasks sometimes require going near places where wildlife is present, thereby putting women at risk of attacks. The presence of potentially dangerous wildlife can limit women's freedom of movement. This can make it more difficult for women to perform their daily tasks and may lead to them having to go longer distances to avoid areas with wildlife.

Table 4. The gendered impacts of human-wildlife conflict

Also, the frequent occurrence of HWC coupled with a tendency toward social modernism and urban centralism is encouraging young people to seek economic opportunities in nearby cities such as Cape Coast, Takoradi, and Accra. If a couple cannot emigrate together, the most common option is for the head of the house to migrate to a city in quest of economic opportunities while the women and the children are left behind. Many of the men who migrate to urban areas in pursuit of opportunities sometimes spend several weeks or months away from their home villages. Most participants admitted that migration sometimes improves the economic condition of homes left behind, particularly where

remittances are regular. However, the allure to metropolitan regions affects agricultural labour in the communities. One young farmer commented:

I am young and love farming, but if things continue like this, I might have to look elsewhere because this is not helping. I cannot waste my youthful years on something that cannot help me. [Male, 38]

Other farmers I spoke to also expressed their frustrations:

I am only still doing this because there are no opportunities in this village. The day I get a good-paying job, I will stop farming because I do not really benefit. It is a waste of time to work hard only for those animals to destroy everything. [Male, 45]

My wish is that I could stay here with my family every day, but I can't because there are no jobs here except farming. I tried farming for many years, but the animals were disturbing me. They raided every year. I now work in Cape Coast. I am happy because I can afford to feed my family. [Male, 45]

I enjoy farming. It is hard work, but I like it. However, I know I will quit soon and go to Accra and look for a job. It is better than waiting for conditions here to improve. Most of my friends that have moved to the city are doing well. I will join them soon. [Male, 38]

Additionally, even when spouses are absent, women are unable to make significant decisions without first obtaining approval from their absentee partners. The dominance of men in household decision-making means that women are unlikely to have sufficient resources in their own right. In some instances, some women see migration as a way of escaping penury, but they are compelled to remain because their husbands aim to return. Consequently, the increased strain of farm work on women when their spouses migrate is inescapable as the load of caring for the household is increased:

The whole farm was destroyed, and so he had to go and work in Cape Coast. I am now left with taking care of the children and also looking after the farm. It is not easy. We are all suffering. I know his job is not lucrative, but it is better than nothing. [Female, 50]

I take care of everything in the house. I look after the children and also make sure I protect the farm, which is not an easy task. My husband is away working in the city and he does his best to provide for the family. [Female, 40]

Ever since my husband went to the city, I try my best to look after the farm. Last year for instance, I put up pepper fence to protect the farm. It worked for a while then there was a big storm that affected the fence and the animals found a way into my farm and destroyed most of the crops. [Female, 45]

Women who are left behind are not only burdened with agricultural and home responsibilities but subjected to psychological stress and sexual repression. Wives face emotional distress and even marriage crises as a result of long-term separation. Some women also become victims of infidelity as a result of their migrant husbands' extramarital affairs. Even after they have migrated, men continue to exert authority over family decisions, particularly those involving income generation. In this instance, wives who remain behind shoulder a double load of farm and housework and are emotionally and economically dependent on men.

In the case of some female-headed households, their situation is exacerbated by insufficient labour. A widow I interviewed in one of the communities expressed her inability to mobilize labour:

My husband used to guard the farm at night; now that he is no more, I cannot get anyone to protect the farm. I have to look after the children and also go to the market. I wish I could hire someone to watch the farm, but I can't afford it. [Female, 65]

Also, migration has worsened the geo-political segregation that already predisposes farmers to a variety of difficulties, including social marginalisation. Some of the communities are shrinking, resulting in low population density as young people are less inclined to remain in these communities, preferring to live in areas with better infrastructure and employment prospects. The rural exodus and its impact on labour availability means that capacity of some farmers to till more land is limited. Furthermore, crop-raiding incidents often resulted in a cascade of unintended consequences for some of the villagers. For instance, women and men, in some instances, constructed and repaired damaged pepper fences which is physically demanding and sometimes result in breaking the law. For example, I observed that some men and women obtained poles illegally from the forest for the construction of pepper fences. When they do so, they risk coming into contact with forest rangers.

The sentiments regarding gender roles were the same across all the communities I visited. Most of the men I interviewed claimed they were solely responsible for guarding because they were men and regarded as protectors. It is a traditional role that is ingrained in the communities. I interviewed a woman in Mfuom about her responsibilities and experience with HWC. Regarding guarding farms, she uttered the *twi* proverb, '*Etuo to a ɛsi ɔbarima bo,*'[6] trying to explain her point, she adds that '*it is the responsibility of a man to protect and provide for his family*'. According to her, men are expected to fight life's battles bravely and tenaciously. Bravery is a hallmark of being an *ɔbarima,* and any man who falls short of this sociocultural norm is seen as lacking in manliness. Thus, men are seen to be capable of providing security and a means of living for themselves and for women since they are perceived as stronger, smarter, and have leadership qualities (Gyan *et al.* 2020). As a result of this presumption, boys are encultured purposefully to equip them with these attributes.

[6] This is an Akan proverb which literally means, if a firearm's trigger is pulled, it is a man's chest that bears the impact.

Her utterance of such a proverb and attempt to explain gendered roles in her household was not entirely unexpected because *ɛbɛ* is a revered oral tradition in Ghana and many African societies. Chinua Achebe sees them 'the palm-oil with which words are eaten' in his famous novel, *Things Fall Apart* (Suhadi 2019), while the Zulus claim that without proverbs, 'the language would be but a skeleton without flesh, a body without a soul.' (Dagnew and Wodajo 2014, p.94) Proverbs are indicative of collective opinions rather than individual thinking.

Proverbs are sayings that express widely acknowledged cultural insights about communities, and provide light on the general idea of what people in the communities expect of men and women. Most of the *twi* proverbs I encountered explicitly mention *ɔbarima*, and men exhibiting nonconformity to culturally established norms of masculinity may be subject to derision (Adinkra 2012, Diabah and Amfo 2015).

Proverbs form the ground for gender construction and stereotyping. Other proverbs I encountered are also illustrative of gender roles. These include; *'ɔbaa tɔn nyaadewa na ɔntɔn atuduro*[7], and *'ɔbaa ho yɛ fɛ a, na ɛfiri ɔbarima'*[8].

According to Adinkrah (2012), modern Ghanaian cultural concepts of masculinity and femininity include the conviction that there are biological differences between men and women and their related behavioral norms. In most social contexts, men hold dominant social positions, and women are expected to be submissive (Adinkrah 2012). Also, men are viewed as stronger, smarter, and have leadership skills (Gyan *et al.* 2020). Many *twi* proverbs portray men as valiant and able to handle difficult situations to demonstrate masculinity (Adinkrah 2012, Diabah and Amfo 2018). I noticed that enculturation plays a

[7] This is an Akan proverb which literally means, a woman trades in eggplants, not in gunpowder.
[8] This proverb means, the credit for a woman's beauty should be attributed to a man.

significant role in influencing gender roles. Thus, from an early age, children were trained into gender roles.

4.3. Increase in unlawful activities

Poaching has become a lucrative and more appealing alternative for many men in the communities as their primary source of income is affected by HWC. According to one park official, poaching has become a source of income diversification as the animals killed are sold to local chop bars[9]. Officials of the park also confirmed that poaching has risen over the past decade as members of the communities collaborate with non-residents to enter the park illegally. On some occasions, officials say they are successful in making arrests, which has caused a strain on the relationship between the park officials and the locals. I observed that the relationship between the officials and locals is tense as farmers feel the government is more concerned with the wellbeing of the wildlife in the park than rural folk. Some park officials explained:

In the past, we sometimes had to close our doors and hide in the offices when we see them coming in their numbers. These days, our relationship has improved, but there is crop-raiding in many of the surrounding communities and hamlets every year, so there are still a lot of challenges. [Male, 55]

Some of the farmers I interviewed revealed why there is tension between them and the park authorities:

I used to go to their office in Abrafo to argue with them. You can go there and ask of me. We don't have any benefit from the park. Our children are not employed by the park. Their wildlife destroy our farms and they expect us to be happy. All they care about is the animals. [Female, 48]

[9] Local restaurants that serve traditional meals as well as local alcoholic and non-alcoholic drinks.

They always encourage us to file a report at the office when our farms are raided. You can ask them. I have been to their office numerous times to file many reports. Sometimes they come to see the situation for themselves and sometimes they don't come. However, if you kill any of the animals, you will be in trouble. I am really angry with them. [Female, 45]

The frequency and magnitude of wildlife poaching is likely to rise when agricultural revenue declines (Wilfred and MacColl 2010). As a result, it is not unexpected that poaching, which is a profitable activity, would become an appealing alternative for a greater number of villagers if economic opportunities are unavailable. The prosecution of men in the community due to illegal park entry, and poaching has contributed to social discord, disharmony, and hostility between locals and park officials. A man during the focus group discussions put it this way:

My farm is all I have. When the elephants come and destroy my crops, they do not do anything about it. The animals are allowed to destroy our farms, but we are not allowed to kill them. If you go to the forest to hunt, they will arrest you. They never think about us. [Male, 48]

Other farmers lamented:

We are always suffering. Even if you go to their office to complain, they do not do anything about it. I am a man of peace, but when my livelihood is threatened, I am different. What happens in this village is not fair, and that is why I am sometimes hostile towards them. [Male, 30]

Almost every year our farms are raided by elephants. If you injure or threaten them you will be arrested by the wildlife officials. If you even go in the park to hunt other animals, you will be prosecuted. We are not asking for much. All we are asking for is for the park to either compensate us or prevent the animals from coming to our farms [Male, 36]

Some of the farmers who also hunted agreed that the closed hunting seasons are important. According to the park officials, the seasonal closure period was when most species were pregnant and/or cared for their offspring, and the hunting restriction guaranteed the sustainable use of wildlife. When the mating cycles are disrupted during the closed hunting season, the population of species is significantly affected. In the all-male focus group discussions in Mfuom, participants agreed that the closed season is a blessing for hunters because sustaining the fauna species in the area benefited their hunting by ensuring a consistent supply of bushmeat.

Despite acknowledging the critical nature of the seasonal hunting closure, most of the participants were hesitant because of the absence of viable alternatives. Thus, the unavailability of other forms of subsistence during the closed hunting season has prompted the large-scale hunting of animals and an increase in bushmeat trade. The ready market for bushmeat is one of the driving factors for hunters to violate the hunting restrictions.

Some farmers also expressed their dissatisfaction with unscrupulous park rangers who conspired with hunters to conduct hunting during the closed season. These acts enraged a large number of law-abiding hunters, prompting them to violate the seasonal restriction. Perceived corruption is a big problem. Several park rangers were accused of dishonestly charging exorbitant fees to release hunters caught killing or capturing wildlife. The farmers who doubled as hunters stressed that if these corrupt officials were not arrested, it would be impossible to abide by the hunting regulations. Thus, some of the hunters refused to adhere to the hunting prohibition, claiming that corrupt park employees assisted certain hunters in circumventing the ban. They were, however, hesitant to expose such corrupt officials, believing that they would face consequences. When I confronted the leadership of the park officials about the corruption allegations, they confirmed that corruption was rife amongst some of the park officials mainly because of their meagre wages.

Aside corruption, broken promises, unmet expectations, and perceived injustices have strained the relationship between wildlife officials and local communities, exacerbating tensions and creating significant challenges. The wildlife officials, tasked with managing this delicate situation, strive to balance the protection of wildlife and ecosystems with the livelihood and safety concerns of local communities. Despite the best efforts of the wildlife officials, the close proximity of farms to the park and the lack of a buffer zones makes their tasks more challenging. They often emphasize the necessity of their actions to protect wildlife and the ecosystem. Conversely, local communities prioritize their livelihoods and safety, perceiving wildlife officials as prioritizing wildlife conservation over community welfare. Locals also believe that officials often disregard their expertise, needs, and concerns, further contributing to the strained relationship and mistrust.

Mistrust between officials and locals is intensified by miscommunication and a lack of transparency. Local communities frequently perceive wildlife officials as unaccountable, particularly regarding decision-making, resource allocation, and revenue distribution. The absence of transparency, combined with ineffective management measures, fosters mistrust. For example, most strategies promoted by wildlife officials have not been effective in preventing crop-raiding, leading local communities to question the authorities' capacity to manage the conflict effectively.

Despite the existing tensions, both wildlife officials and local communities have collaborated on numerous occasions to manage crop-raiding incidents. This cooperation suggests a shared value and respect for the ecological and cultural significance of the park, as well as a joint responsibility for the wildlife. This common ground provides an opportunity to foster discourse and collaboration between wildlife officials and local residents. By incorporating the perspectives, interests, and capacities of both parties, the conflict can be addressed more inclusively and equitably. Consequently, both parties can work together to establish community-based early warning systems and deterrents to manage the

situation. Through communication, empathy, and shared responsibility, locals and wildlife officials can transition from a complex relationship to a resilient collaboration.

Corruption also undermines trust, cooperation, and sustainable conservation efforts between wildlife officials and local communities. Forms of corruption in wildlife management include bribery, embezzlement, nepotism, and abuse of power. Corruption erodes the faith of local communities in wildlife officials, leading them to distrust conservation initiatives and resist participating in resolving HWC. Bribery and corruption also contaminate wildlife law enforcement. The weakening of the rule of law due to corruption contributes to the disruption of ecosystems by allowing illegal activities such as poaching and habitat destruction.

Additionally, corruption diminishes the conservation motivation of some individuals because they perceive that corrupt officials are misappropriating conservation benefits; hence, they are less inclined to support wildlife management efforts. Corruption poses a significant threat to wildlife conservation and the relationship between local communities and wildlife officials. It sours relations between the two parties by eroding trust, disenfranchising local populations, misallocating resources, compromising law enforcement, and reducing conservation incentives. To address corruption, it is essential to promote transparency, accountability, and capacity-building within wildlife management. By doing so, the relationship between wildlife officials and local communities can be improved, ultimately fostering more sustainable and harmonious coexistence between humans and wildlife.

Addressing the brewing storm, both sides must communicate their priorities, concerns, and limitations. Empathy, shared accountability, and inclusive decision-making can transform the entangled relationship between villagers and wildlife officials into a robust collaboration that promotes coexistence. Building trust and connections necessitates the involvement of local communities in decision-making. By

including them in conservation planning, wildlife officials demonstrate respect for communities' rights, knowledge, and experience, fostering a sense of ownership.

In order to establish community trust, wildlife officials must be transparent. This involves consulting with local communities on budgets, activities, and conservation goals. Wildlife officials must also take responsibility for their actions and address complaints promptly and fairly. Cooperation and overcoming skepticism from past disagreements or misunderstandings require trust. Wildlife officials can display their commitment to fair and constructive dispute resolution by openly discussing concerns, sharing information, and being accountable. By incorporating locals in decision-making, locals might be likely to endorse new strategies. As stakeholders, their input lends legitimacy to proposed solutions. Also, local communities may offer unique insights and solutions to human-wildlife problems based on their experiences. This diversity of ideas can inspire improved conflict resolution strategies. Furthermore, bottom-up decision-making enables community members to collaborate towards a common goal, fostering social cohesion. By tackling problems together, locals can strengthen community bonds.

Farmers in KCA are mostly unaware of the regulations governing conservation activities inside and around the park. Some of these restrictions as stipulated in the Wild Animals Preservation Act, 1961 (Act 43), include; No hunting, capturing or destroying any of the species; no manufacturing or using traps which may be used for the purpose of hunting, capturing or destroying any animal unless authorized to do so by the wildlife office; and Any person who contravenes the restrictions shall be guilty of an offence and liable on summary conviction to a fine or to imprisonment or both.

Furthermore, women have less access to information sources than males do, owing to their demanding work schedules, which leave them with less time to attend seminars and workshops. I noticed that more men attended formal gatherings in the communities than women. Some women justified their absence

by stating that they were required to attend to and cater for their children and engage in domestic chores, which precluded them from attending such meetings.

4.4. People-people conflict

The key informants I spoke to revealed that the park was constructed as a 'top-down' conservation initiative, with little input from local residents. As a consequence, farmers often claim 'being left out' as the primary reason they oppose the regulations of the park. The locals expressed their unhappiness with limited access to resources in the park. They feel and believe that the welfare of the wildlife in the park is taken more seriously by officials than their welfare and survival. In some HWC hotspots, these views can be expressed through overt acts of sabotage. For example, in 2009, residents in Engare Nairobi demonstrated against conservation efforts by driving six elephants down a cliff (Mariki *et al.* 2015). However, in KCA, these views and emotions manifest in the subtle undermining of conservation efforts.

In this atmosphere of hostility between authorities and locals, institutional measures aimed at reducing crop-raiding are often neglected by farmers. Farmers' lack of trust in local authorities, as well as endemic corruption, are exacerbated by the park management system's inefficiency, which results in a lack of desire to use institutional channels. Indeed, the local's resistance to new preventive measures such as the use of beehives is a reflection of the nature of animosity between locals and the park officials. Thus, the lack of trust and feeling of abandonment means that they prefer old traditional means over experimenting with novel strategies suggested by officials.

4.5. Disruption of social cohesion

In KCA, I noted that crop-raiding damages the cohesion of communities by disturbing the social standing of some farmers. For instance, residents who are linked to a host home or who attend certain

events are required to assist with money, food or drinks. Ceremonies such as weddings, outdooring[10], engagements, and funerals are not cheap. Farmers delight in contributing to ceremonies in cash and in-kind. In Ghana, giving gifts to others is inextricably tied to social connectedness in the communities, just like in other African societies, and enables the establishment or preservation of social networks. Therefore, when a farmer cannot get income from farming or produce food because his or her field has been destroyed, he or she cannot appropriately undertake some social responsibilities.

Exchanging gifts and food sharing sustains or establishes the social networks of friends and families. Thus, in order to preserve or build social networks, farmers take tremendous delight in contributing to ceremonies. Consequently, crop-raiding impairs their ability to establish positive social relationships, causing societal cohesion to deteriorate. Knight (1999, p. 632) noted a similar observation of the impacts of monkeys in Japan, where 'in raiding garden produce in remote hamlets, monkeys deprive elderly villagers of a symbolically important currency in social exchange'. Furthermore, crop-raiding eventually damages the community's cohesion by disturbing farmers' social mobility. For instance, many farmers are hesitant to leave their fields unguarded and attend social events due to crop-raiding:

Sometimes I only go to ceremonies and funerals for people to see I was present. I wish I could stay and support my bereaved friends, but I cannot. I have my mind on my crops and have to guard them regularly so that my hard work is not in vain. [Male, 42]

I wish I could attend most ceremonies and show my support. I only go to events in the dry season because by then, I have harvested my crops and not need to worry about elephants raiding my farm. [Male, 45]

[10] A traditional naming ceremony in where a new-born baby is symbolically introduced to the community and given a name (usually occurring eight days after birth).

Last year, one of my cousins passed away. Unfortunately, my whole farm was destroyed by these animals. I could not contribute much to the funeral ceremony like I wish. I felt defeated and embarrassed, but my family understood that I was having a difficult time. [Male 52]

The nature of resource sharing that I witnessed in the communities is akin to risk spreading. A farmer faced with a crisis was often compelled to solicit supplies or even money from relatives. In Ghana, extended families' pool resource sharing is based on reciprocity. This is critical in assisting all family members in coping and adapting to challenges. For instance, if someone becomes ill, all family members who can contribute are expected to do so. This principle ensures that the adverse consequences of economic and food insecurity do not burden a single individual. However, this only works as long as enough relatives can afford to support each other.

4.6. Education

Human capital is underdeveloped in the communities. The level of illiteracy is high, although public schools in Ghana currently provide free elementary education. Parents are responsible for uniforms, school supplies, test fees, and meals. Significant crop-raiding and the resulting loss of revenue leaves households unable to pay the wards' tuition (in private schools). Children are sent away from school if their parents do not pay tuition. The education of children is affected over time as a result of frequent absenteeism and hinders the children's capacity to seek further education in the long run.

In addition to jeopardizing farmers' economic and food security, combating crop-raiding sometimes necessitates vigilant field patrolling to frighten elephants away. Unfortunately, protecting these farms frequently necessitates extra labour hence the use of minors. This has a negative influence on children's educational opportunities. Some participants admit that their wards[11] help guard the farms during peak

[11] Children who are not paid but help their adopted families with activities and chores in exchange for guardianship

raiding season on weekends, holidays, vacations, and sometimes on school days. Thus, exhaustion from keeping awake results in school absenteeism which leads to pupils missing valuable instruction periods in school. Many participants expressed anxiety about having to choose between their livelihood and their children's education and expressed concern that their wards and children could not compete academically with other children:

They are going to write the same exams; they cannot perform any better than their friends in the city. It is impossible. We are trapped, our children will drop out of school and not progress, although we all want a better life. [Female, 40]

I wasn't the brightest, I wasn't the worst in school either, but I had to choose between the welfare of my family and school; it wasn't a difficult decision. I have no regrets; farming is what puts food on the table for the family. [Male, 45]

I can't do everything alone. Sometimes I let my children help out by guarding the farm. It is a challenging task, but we all manage. I know that the time they spent on the farm could have better been spent on studying but if they don't help, I can't feed the family. [Male, 45]

We are suffering. Farming is what I use to look after my children. When my farm is raided, I find it difficult to buy them some of their educational materials. I get money from the sale of my crops so when there are no crops there is no money. [Female, 40]

Similarly, in other studies, guarding has been linked to poor school absenteeism and poor performance in youngsters (Mackenzie and Ahabyona 2012). This is unfortunate as higher education can potentially lower the risk of HWC to a large degree because better education opens the door to better-paying occupations. Thus, the loss of educational prospects deprives younger generations of opportunities, thereby sustaining inequality and perpetuating cycles of poverty.

4.7. Opportunity costs

One of the most significant hidden costs of HWC is opportunity cost, which is defined as the loss or sacrifice suffered by pursuing a specific course of action against HWC rather than other more preferable and useful options (FFI 2014). Opportunity costs are one of the social issues that communities living near KCA experience and are a component of the broader socio-economic challenges that communities face. Some farmers are required to monitor their farms at night, particularly during the farming season. This puts individuals at risk. Hence, their inability to participate fully in other social and economic activities.

Many of the farmers I interviewed bemoan the fact that the time spent on guarding their farms could be used in other productive activities. Also, night guarding deprives individuals of the opportunity to earn money during the day owing to a lack of sleep. Also, the hidden costs incurred by money spent on different crop protection measures such as the construction and maintenance of pepper fences and scarecrows could be better spent on increasing agricultural productivity by purchasing inputs such as pesticides, herbicides and fertilizers. Thus, when funds are redirected to farm security, the farmer's investments in other prospective revenue-generating ventures are jeopardized.

In Ghana, like in many other African nations, farmers can only afford to prevent animal damage using conventional, low-cost deterrent tactics. The most often used techniques include guarding, which frequently entails chasing away raiders. Other low-cost measures include erecting barriers, lighting fires and shooting a rifle. My findings show that the conventional deterrence tactics are ineffectual and ultimately result in raiders developing a habit, especially elephants. Furthermore, even if conventional measures are briefly effective, they seldom resolve the issues. Some farmers pre-empted attacks by placing initial deterrents on their fields, while others deployed deterrent tactics only after the first raids.

Some farmers do employ guards to protect their farms although this is not always a feasible alternative. Employing a part-time guard is expensive jeopardising economic stability. For most farmers, this is a significant expense, particularly given that guarding does not always offer complete field protection. This is because elephants may be fearless. For instance, one farmer reported being driven back to his hamlet by a herd of elephants that frequently raided his land. He claimed that he was terrified and remained inside his hut as the elephants plundered his farm. These imply that, although guarding may sometimes avert a few invasions, it is often insufficient to safeguard crops in the long haul. This is because elephants gradually develop a tolerance for deterrent measures they view as non-dangerous. This shows why guarding is not always effective.

4.8. Summary

In this chapter, I discuss the importance of community values and standards. In KCA, I found that the socio-cultural system is patriarchal, and that shared values and norms shape common assumptions about gender roles. The uneven labour allocation is due to societal expectations, biological differences, and religion. HWC impacts reflect gendered labour allocation. For example, women are overworked, while men are driven to engage in criminal activities like poaching. Crop-raiding has made poaching more lucrative and appealing. Unlawful activities such as poaching have increased tensions between people and park officials. Farmers say the government is more worried about the park's animals than the well-being of rural people. In this context of authority vs. people, farmers may disregard institutional safeguards meant to limit crop-raiding. The system's inefficiency exacerbates farmers' suspicion of local governments, leading to a lack of willingness to use institutional channels. I also revealed how crop-raiding impacts community cohesion by lowering farmers' social standing and community cohesion, social mobility, and education.

Chapter 5 – Beyond dichotomies: Gender and intersectionality in human-wildlife conflict

5.1. Introduction

The previous chapter focused on the gendered impacts of HWC in the communities. This chapter addresses the second part of research sub-question 2, namely, 'How does intersectionality influence these [HWC] impacts?' In this chapter, I give insight into the variables that contribute to susceptibility to HWC. I seek to examine pre-existing social vulnerability (i.e., social elements that may amplify HWC impacts) and their implications for farmers' lives and livelihoods in the short and long term. I identify two mechanisms by which HWC exacerbates inequality: (a) increased exposure, and (b) decreased ability to cope.

Drawing on the concept of intersectionality, I demonstrate that the link between HWC and social-economic disparities is a vicious cycle, in which pre-existing inequalities make disadvantaged groups disproportionately affected by HWC, resulting in greater inequality. I then discuss the mechanisms by which the aforementioned process occurs. In this chapter, I also examine how the gendered impacts of HWC are perceived. Despite the gendered division of labour and significant discrepancies in housework distribution between men and women, both men and women have a strong sense of equality. They adhere to a conventional gender paradigm, as a result of which they accept an uneven distribution of household work and consequences, which they have become accustomed to as a consequence of their socialisation. This accords with their normative norms, which they believe are justified. In the communities, there is a cultural tendency toward gregariousness, group orientation, collaboration, interdependence, and community achievement in all cultures, and self-esteem is largely predicated on what an individual can contribute to the larger welfare of the group.

5.2 . Intersectionality: Inequalities and exposure

Results from interviews and participant observation reveal the means by which HWC exacerbates socio-economic inequality in the communities surrounding KCA: (a) increased exposure and (b) limited ability to cope. The connection between this mechanism is characterized by a self-reinforcing loop in which pre-existing socio-economic inequality leads disadvantaged individuals and households to suffer disproportionately from HWC and impairs their capability to cope with HWC-related impacts. Additionally, HWC exacerbates socio-economic inequalities by impairing the vulnerable households' ability to recover from HWC-related impacts.

Consider the following example to get a sense of how the loop functions. Increased crop-raiding is one of the repercussions of HWC. Evidence from the communities indicates that inequality often forces disadvantaged populations to dwell in the same prone locations, increasing their farms' exposure to crop-raiding by elephants. Second, among residents in the same crop-raiding risk zones, disadvantaged populations are more vulnerable to crop-raiding. Their farms are sometimes totally or severely damaged since they are unable to put in place adequate measures to deter elephants. In comparison, the farms of the economically advantaged sustain less damage since they are often able to put in place measures such as erecting pepper fences and employing extra hands to guard their farms.

For example, in Mfuom, I interviewed two widows who lived 100 metres apart. Their farms were being ransacked by elephants on a regular basis. According to the first widow, her farms were regularly visited by wildlife and her crops were trampled upon by herds of elephants. Apart from farming, she has a thriving import business, where she travels to the north of the country to import food produce for sale in the south. Because of her business, she could afford to hire extra hands who look after the farm and to make sure that they put pepper fences in place. On the other hand, her widow friend who lives in the same community only relies on farming for sustenance. She inherited the farm from her late husband

and because her kids have migrated from the village, the onus lies on her to protect her farm alone. Her frail strength means she is unable to guard her farm or construct pepper fences. Her woeful economic status means she is unable to afford someone to help guard her farm. The farms of these two widows are both prone to crop-raiding because of their farm's proximity to the park. However, their respective abilities to cope are worlds apart. During raids, the first widow is able to use her business to hedge against her losses, whilst her friend is not in such a privileged position to do the same. Her fewer assets and income makes her more exposed and susceptible to the impacts of HWC, as well as less capable of coping with and recovering from the impacts of crop-raiding.

I also noted that disadvantaged households are more vulnerable to HWC in part because their investments are not diversified. They lack options and are forced to farm in the same single geographical location even though it might be prone to crop-raiding. In comparison, their plight contrasts with that of relatively wealthy families, who have diversified assets. Their superior socio-economic status means they sustain less destruction because some have multiple lands to farm on or have other financial alternatives to rely on.

5.3. Intersectionality: Inequalities and coping

Coping is one of the axes of the inequality-HWC vicious cycle (Figure 11). Inequality translates into fewer resources available to disadvantaged populations for coping and recovery strategies. As a consequence, their relative circumstances deteriorate further. I observed that underprivileged households and individuals face slower recoveries from adverse effects of HWC, which exacerbates inequality. Due to lack of resources, disadvantaged people are frequently forced to cope in negative ways that jeopardize their future adaptive and growth capacity. For example, asset-poor households are more likely to offer substandard nutrition to their children and send their children to public schools. This may have long-term consequences for the children and their development prospects. Also, to save

money, many underprivileged families withdraw their children from school to help guard the farms, thus further jeopardizing their future children's health and education prospects.

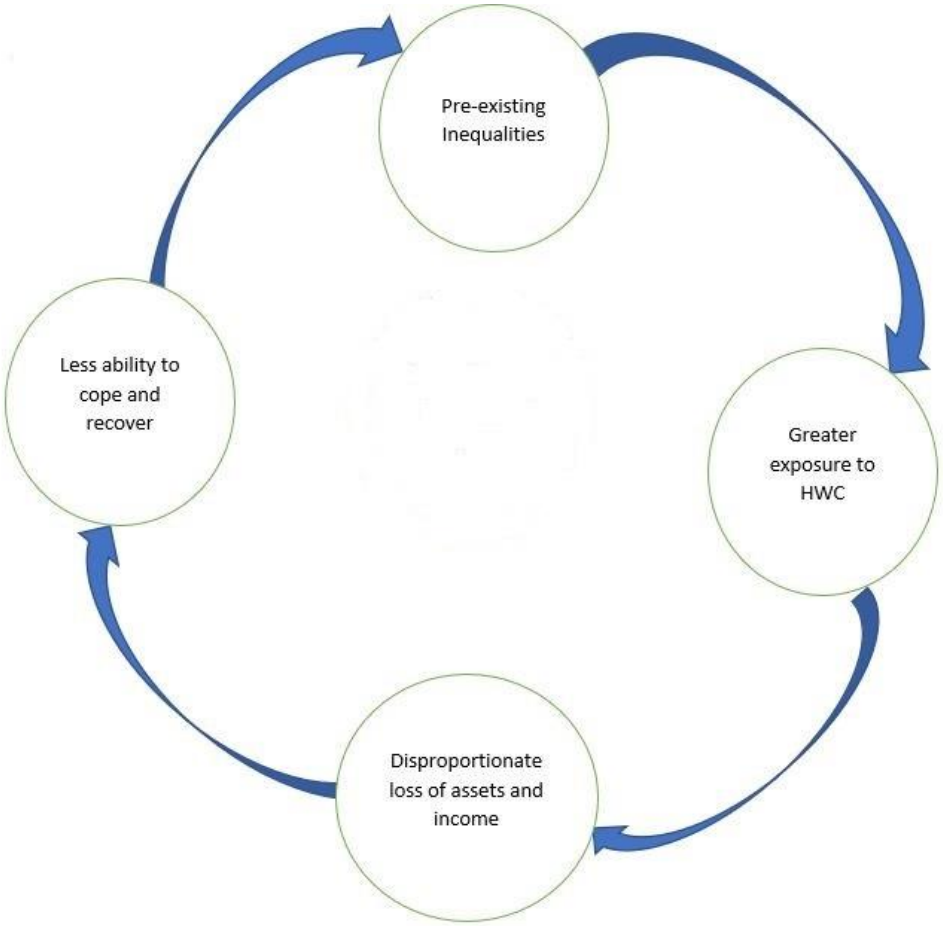


Figure 11. HWC-inequality vicious cycle

There is substantial evidence that disadvantaged people recover more slowly from adverse HWC. Lack of resources often drives disadvantaged households to respond to HWC threats in harmful ways, jeopardizing their future adaptive and growth ability (Lamarque *et al.* 2009). When confronted with HWC, disadvantaged populations often face a tough decision between human capital protection and physical capital preservation. Due to the lack of income, these families face significant costs if they are afflicted by illnesses (Ogra 2008, Mariki 2016). Disadvantaged households often cut down on

consumption and human capital investments to dangerously low levels in order to preserve their little physical assets. However, such abrupt cutbacks often have a detrimental long-term impact on the health and education of family members (Ogra 2008, Sitati *et al.* 2012).

Finally, underprivileged populations are less equipped to deal with and recover from crop-raiding. For instance, the wealthy have alternatives through their diversified businesses to hedge against any losses through crop-raiding. By contrast, economically disadvantaged groups are unable to do so. Even assuming equal exposure and susceptibility of both rich and destitute families after a disaster (which I have shown not to be the case), the rate of recovery may be a major influence in future inequality. If both affluent and impoverished families recover at the same pace, inequality will stay stable; and if disadvantaged groups do not recover at the same rate as advantaged ones, inequality will continue to widen.

Interviews in the communities reveal the unequal consequences faced by different age groups. Thus, apart from income and wealth inequality, age is one of the most egregious factors influencing HWC-related vulnerability in KCA. I noted that the aged suffer disproportionately more from the harmful consequences of HWC. Age influences people's livelihood alternatives and trajectory and contributes to situations in which individuals have little to no buffers against even minor risks. The elderly are more susceptible to a variety of conditions, such as respiratory infections, musculoskeletal discomfort, and accidents. They are also more susceptible to neurologic disorders and cognitive deterioration. Some of these illnesses are the consequence of delayed and/or cumulative impacts of numerous agricultural exposures in general including UV radiation, hard labour, herbicides, pesticides, dust, and endotoxins (Pérès *et al.* 2012). Aside from the possible long-term impacts of these exposures, aged farmers in rural areas confront a variety of challenges in their everyday lives, such as poor living circumstances, geographic isolation, and restricted access to services and basic necessities.

For instance, in the typical KCA household, cultural norms determine who gets priority access to food. When food is scarce in a home, elderly women and men typically suffer the burden of the scarcity because they opt to skip meals so that younger family members may eat, thereby exposing themselves to malnutrition. I have demonstrated in Chapter 3, that crop-raiding influences nutrition by reducing the availability of adequate amounts of food in households. This might include meals tailored to the nutritional demands of the elderly. The aged are more affected by food loss because pre-existing chronic diseases, medicine that affects appetite, hydration, and how the body absorbs nutrients are all examples of variables that might alter their nutritional status (Tucker and Buranapin 2001, Pérès *et al.* 2012). Those who have lost teeth, for example, find it difficult to chew hard meals, and certain foods may be difficult to digest.

In addition, owing to illness, older folks aren't physically capable of seeing migration as an option. Coupled with having a relatively stronger attachment to their communities, this makes it almost impossible to leave. For them emigrating means severing social connections and a lack of safety. As a result, they are less likely to move, and even if they do, they face dangers, such as being separated from family and friends. In KCA, I noted that HWC has a greater impact on older persons with limited or deteriorating adaptive ability, especially those who are handicapped, destitute, chronically sick, or socially isolated. For instance, in Abrafo, I encountered an old farmer whose chronic lower back pains means that setting up a pepper fence to protect his farm in addition to this regular farming activities (planting, weed and pest control, and fertilizer application) aggravates his health condition. His best bet is relying on officials who are not always reliable due to personnel shortages and resource constraints. In our interactions, he bemoans the fact that although migrating to a new place has crossed his mind, he is unwilling to abandon the land.

'I was born here (in Abrafo) and this is where I have lived all my life. In my youthful years I thought of migrating to Cape Coast but I couldn't abandon the family land. In recent years it seems their (elephants) population has increased so they frequent the farms often and cause damage. Unfortunately, I don't have the strength to always be guarding the farm. Sometimes the officials come to help but it is not enough' [Male, 72]

Contrary to the above excerpt and other old folks in a similar predicament, most young people see migration as an option and most expressed their willingness to migrate if conditions become unbearable (see Chapter 4). On the other hand, relocating to the nearby towns and cities is not an option for the aged. For example, in one of the communities, I interviewed an old man whose plantain and cassava farm is constantly raided by elephants. Farming is his only source of income and hence he is not in the position to hire guards to help him protect his farm. According to him, he inherited the piece of land from his father who was also a farmer. His two children have migrated from the village to the urban areas, and although they pay him visits once in a while, they hardly send remittances. He is not strong enough to regularly guard his farm. Migrating is also not an option.

For him, personal experiences, life milestones, and personal development events give the community meaning. Also, memories accumulated throughout time, sentiments of familiarity, and a sense of place have deeper meanings for him and others in his position. That is to say, he has created a strong link with the culture, which provides a sense of identity and security. "Cultural attachment" has been coined to describe this phenomenon (Hong 2017). Other scholars refer to this as 'sense of place' (Hay 1998). It is defined by the emotional tie that exists between a person and a place. In the case of the aged, it connotates the feeling of "rootedness" which is an unspoken commitment to a location, based on knowledge gained from long-term residence.

I posit that he and others in his position feel 'trapped' in their surroundings since they are unable to leave due to such strong social connections in the community, or maybe they feel the merits of staying outweighs the risks and demerits associated with settling in a new community. This is in sharp contrast to the younger folks with lower degrees of ‘rootedness’ who contemplate escaping the rural life for greener pastures elsewhere.

Due to their modest income, elderly individuals are often among the poorest in terms of resources and are already suffering. They also often lack new knowledge about HWC management solutions. The ability of older persons to manage HWC is hampered by a mix of chronic health issues and social isolation, as well as restricted access to resources. Isolation may also occur as a result of the loss of family members, caregivers, and community links. Even in the case of an animal attack, elderly persons who are feeble may be less able or willing to avoid danger.

Many senior citizens contribute much to their families and communities. Their knowledge of historical events, a community's vulnerabilities, and capacity may be invaluable in determining the nature of social vulnerabilities. Older individuals have expertise and experience with agricultural practices that may boost output while minimising environmental impact. Their decades of experience with weather patterns may be invaluable in helping to reduce the effects of a changing, less predictable environment. In order to maximise their talents while also addressing their rights and vulnerabilities, it is critical that future HWC initiatives and policies consider the elderly.

5.4. HWC-related vulnerabilities and adaptive capacity

I observed that in many households, decisions are made solely by the husband, while in some households, decisions are jointly made by both spouses. In some cases, although couples may share ideas on financial decisions, the wife will accept the husband's decision if he is adamant. The findings of the mixed focus group discussions revealed that men have a far stronger voice when it comes to

deciding on final adaptation options. Men have a greater voice in decision-making in households, allowing them to exert greater control over decision-making processes at both the household and communal level; and although women are able to mobilize social and financial capital, they lack decision-making power over the family's financial resources, which is critical for adaptive responses to HWC. Furthermore, by gaining a monopoly on formal political power, men have greater decision-making power in households allowing them to have complete control over the family's resources, which inherently increases their capacity to adapt better.

In all the communities, social capital is a valuable non-tangible asset that is important for coping with the impacts of HWC. Social capital in the form of social networks facilitates knowledge and information sharing, and the better informed a farmer is about the most effective ways of preventing crop-raiding, the better their adaptive capacity. Indeed, in some communities, the importance of social capital through trust and reciprocity is indispensable. For instance, the mobilization of social networks is used to create interventions that respond to the risks of HWC. Some farmers in communities such as Mfuom and Abrafo, during the farming season, form small groups (mostly composed of men) and assist each other in the planting of seeds, weeding, constructing pepper fences, and harvesting thereby improving their capacity to deal with the crop-raiding.

Also, information exchange and social learning are crucial tenants of social capital. In terms of the link with human capital, social capital allows knowledge transfer via social networks. Individuals who participate in the park's facilitated meetings gain access to information and knowledge that empowers them as they are more knowledgeable about the most efficient methods of avoiding crop-raiding; hence, social capital results in empowerment in dealing with HWC.

Results from the interviews indicate that social capital can be crucial. Close relationships with relatives and neighbours are common. As a result, neighbourhood networks are a valuable social resource. They

help and encourage one another. Another essential source of support is relatives. During times of distress, neighbours and family can be quite helpful. They are the ones who supply food, clothing, and money. Furthermore, they are frequently a source of emotional support, which may be even more vital in order to get through difficult times. The overwhelming favourable responses to questions about mutual support networks show that social life is built on trust, reliability, and reciprocity. Impoverished households are confident that they will receive assistance and be expected to serve others in return.

Access to social capital is especially critical. For instance, there are official programs established by park authorities. Through this, farmers can share information about farming practices and HWC management measures. Despite the glaring gender disparities, gender-blind approaches to the park's facilitated meetings are prevalent. For instance, over the past decade, the park has rolled out pilot programs related to the use of beehives in managing crop-raiding. A review of the parks' archives shows that all the farmers selected for the pilot program are men.

It is not just participation in meetings but also the quality of involvement that influences social capital accumulation. Thus, it depends on whether it is nominal participation or interactive participation, in which members have a voice and influence. One's level of participation has a significant impact on the benefits experienced by individuals, which differ according to gender. Men and women's time commitment to group activities varies due to their distinct household roles and obligations. Although the park authorities claimed to be aware of this, time poverty[12] is rarely taken into account when meetings are organized. While women may wish to attend some of these meetings, they are frequently overwhelmed with childcare, food preparation, and agricultural tasks and cannot fit these sessions into their schedules. This is especially true for female-headed households who experience significant time

[12] Time poverty refers to "*lack of time due to multiple timetables (domestic work, care work, non-market economic activity) resulting in time poverty and low monetary income*" (Charmes 2006, p.40).

poverty as a result of their many livelihood pursuits and childcare duties. Consequently, they sometimes conclude that participating in meetings is not worth their time and effort as they believe they will not be heard.

'There have been many instances where we have complained and then they invite us for a meeting at their office (in Abrafo), nothing beneficial comes from those meetings. I had decided not to meet them again and I am even tired of talking about it. [Female, 38]

Sometimes they come here and meet us and write all our grievances, but nothing is done about it. It is a waste of time so I have made up my mind not to even waste my time to go and make a report. [Female, 42]

I have met officials here and in Abrafo so many times. Each time, I am given assurances that they will deal with the problem, but nothing has been done. [Female, 48]

In addition to the general perception that grievances are not being addressed, the issue of time poverty limits their opportunities to exert influence and meaningfully exert pressure on the powers that be to treat the raiding of farms as an emergency, as failure to do so might aggravate the already appalling situation.

5.5. The Importance of Intersectionality in shaping HWC-related vulnerabilities

An intersectional study of HWC elucidates how various people and groups respond differently to HWC as a result of their embeddedness in dynamic social categorizations. Intersectionality outlines a route that avoids essentialisation pitfalls and goes beyond social categories. It demonstrates how, in the face of HWC realities, power structures and categorizations may be maintained, questioned, and renegotiated given that the impacts of HWC are mediated by social, cultural, and economic institutions and processes.

HWC has received increased attention in recent years within conservation science, and the societal consequences of HWC have been more recognized. While the economic and political aspects are increasingly being addressed, gender equality and intersectionality remain mostly missing. This research is unique as it examines how intersectionality may be used as a framework for comprehending the complexities of HWC. The goal extends beyond recognizing the importance of intersectionality in researching HWC problems and includes how individual and group-based inequalities are intertwined with HWC. I concur with scholars who argue that intersectional studies must be multidimensional in order to comprehend how power relations emerge at different levels (Winker and Degele 2011).

One approach to promoting gender equality in conservation is to rely on theory. An FPE lens reveals a wider variety of issues for conservationists seeking gender equality (Elmhirst 2015). Establishing a connection between gender, intersectionality, and HWC is important because focusing only on gender results in homogeneity and neglects the importance of other types of power relations such as age and socio-economic status. Only a handful of scholars have presented a compelling case for analyzing HWC through the lens of gender and intersectionality (Ogra 2008, Mariki 2016). Similarly, the findings of this research are important in demonstrating the need for intersectional analysis in obtaining a more detailed picture of the variables and power relations in HWC in developing countries such as Ghana.

Beyond identifying power relationships, an intersectional study examines the underlying categorizations to analyze how they are perpetuated in the face of HWC. However, social categorizations should not be considered fixed; they must constantly be understood in relation to their historical and geographical contexts, as well as their inherent power patterns. Constructivists see social categories as constantly reproducing and changing, which is critical to our understanding of intersectionality. However, some feminist political ecologists critique intersectionality and believe that by drawing on intersectionality theory, environmental change will lead to alterations in how social difference is understood (Nightingale

2017). However, when individuals are classified, there is a danger of slipping into determinism and overlooking power relations' complexity and continuous renegotiation.

There is a widely held belief that women are more pro-environment due to an innate biological connection to nature and altruistic nature (Bohan 1993). However, this essentialist, viewpoint ignores the numerous factors influencing gender differences in conservation, such as division of labour, social norms, and differential access to resources (Rocheleau 1996, Agarwal 1997). Thus, gender essentialism maintains that men and women are born differently, with women being predisposed to be more pro-environmental. Such an essentialist viewpoint of gender is insufficient for elucidating the norms that underpin gender dynamics for identifying entry points. They may, in fact, be supporting the prevailing framing of women as a homogenously weak but pro-nature group that pervades much of the eco-feminism debate (Mellor 1996, Forbes and Sell 1997, Rigby 1998, Anjum 2020). Indeed, this oversimplification stymies progress toward a more nuanced understanding of how gender, intersectionality and HWC are intertwined.

The latter viewpoint is consistent with the recognition that gender is not binary but rather one social grouping that intersects with other identities (McCall 2005, Phoenix and Pattynama 2006). Hence, these other intersecting factors, rather than gender per se, has implications for vulnerability and resilience to HWC. For example, in India, gender variations interact with caste, resulting in differing adaptive capabilities (Ogra 2008). Similarly, gender division of labour offers distinct difficulties and possibilities for HWC adaptation in Kenya (Mariki 2016). While most studies focus on women, men in HWC hotspots are also affected by HWC in ways comparable to and different from those experienced by women. Thus, men are often overlooked in discussions of gender and HWC susceptibility, despite the fact that socially determined gender roles influence how HWC impacts both men and women.

Consequently, initiatives geared towards managing HWC must focus on both genders and social identities rather than targeting just women (or men).

In order to investigate the connections that exist between various facets of social identity, this research utilised an intersectional approach, which can be interpreted as the combination of multiple social identities (i.e., gender, age and socio-economic status). In a more significant way, this research contributes to pre-existing body of knowledge on HWC by emphasising how important it is to take into account a variety of social identities when analysing the effects of HWC. People have a variety of identities, some of which can put them at a disadvantage, and the ways in which these identities interact with one another frequently determine the kinds of experiences that people have (Lewis *et al.* 2015). Thus, experiences are moulded by the particular combination of multiple social identities (Shields 2008, Parent *et al.* 2013).

The juxtaposition that the multiple social categories by which individuals are characterised interact to influence social and economic inequities is the reason why including intersectionality in analysing the gendered effects of HWC is relevant. For instance, I found evidence of intersectional effects, including a significant gender by age interaction, which is demonstrated by the fact that young men have more adaptation strategies in comparison to older men; and a gender by socioeconomic status interaction, which is demonstrated by the fact that economically privileged women are able to adapt relatively better in comparison to their counterparts who are less economically disadvantaged. It is therefore somewhat flawed to characterise the experiences of individuals or groups by putting more emphasis on one part of their identity than another. For instance, describing the effects of HWC on "men" and "women" without taking into account other criteria, such as age or socioeconomic characteristics, misses significant within-group heterogeneity in terms of experiences and inequities.

In the existing literature on the link between gender and HWC, two dominant themes emerge: *women as victims* and *gender equals women.* Ecofeminists propagate the concept that women are more sensitive to environmental issues or have a natural tendency towards environmentalism. They often portray women as more connected to nature and environmentally aware than men (Joekes *et al.* 1994, Locke 1999). Like other environmental subjects, one of the themes in the HWC-gender literature is *women as victims.* For example, Mariki (2016), in an attempt to investigate the gendered implications of HWC by analyzing the 'Social impacts of protected areas on gender in West Kilimanjaro, Tanzania,' falls prey to the *women as victims* school of thought. Although the purpose may be to empower women via a feminist perspective, the prejudice and overemphasis on the effects of HWC on women are problematic. For instance, Mariki (2016, p.229) claims that;

Men are often killed because they fight back in the event of torture. Instead of reasonable force, park rangers respond with excessive force. In addition, there is evidence of the practice of the inherited protectionism philosophy of "shoot and kill", where traditional hunters pay with their lives. [5] exposed a case in the Serengeti NP in Tanzania where park rangers found 19 traditional Kurya hunters in the park; ten escaped, one was wounded, and eight were executed.

Mariki (2016, p.231) also notes that:

Firewood collection is not only labour intensive, but it puts women at risk of violent acts, sexual assault, backache, exhaustion, falls and mental stress. Moreover, the activity is time-consuming, restricting women's participation in education, development, decision-making, and the opportunity to rest.

Despite highlighting the incidents of Serengeti NP (Viet and Benson 2004), a primary takeaway is that, although *'costs incurred by men include fines, imprisonment, beatings or death,'* women are more affected than men due to *'inequality in the division of labour and resources at the household'*

level'(Mariki 2016) Although studies like this help illuminate the relationship between gender and HWC, they are often skewed towards oversimplification, with impacts being reduced to women-men dichotomies in which women are presented as helpless, marginalized victims. There is the need to get above seeing rural women as a homogenous group that is intrinsically nature-protective but unable to adapt due to their acute fragility in order to wholistically grasp the gendered implications of HWC.

This point by no means minimizes the importance of talking about women's vulnerability or virtue, which are significant issues in many contexts. Of course, women are more vulnerable in many contexts (Rahman 2013, Yadav and Lal 2018). However, making generalizations about women's vulnerability neglects the importance of intersectionality (Phoenix and Pattynama 2006, Nash 2008, Mollet and Faria 2013). Hence, a universal notion of women's vulnerability might mask these contextual disparities if these factors are ignored.

Understandably, feminist scholars are often motivated by specific political and moral goals that seek to empower women by generating discourses on marginalization and vulnerabilities. Nevertheless, by disregarding the core causes that contribute to gender inequalities and render both men and women more vulnerable, they fail to comprehensively address the problems. The emphasis on women's virtuousness and fragility regarding the environment acts as a diversion from actual injustices.

Environmental challenges are complicated and have varied effects on everyone. It might be valid to claim that women suffer more from environmental issues than men (McKune *et al.* 2015, Lynch 2018). However, this does not imply that women are the sole sufferers. Interventions and solutions might be constrained and may not consider the experiences and viewpoints of men if they are only centred on women as the victims of environmental problems.

The literature's *women as victims* storyline is problematic. These illusions which make women seem more vulnerable illustrate the unequal allocation of gender roles and obligations. These preconceptions are sometimes backed by biased, deceptive data that perpetuates negative gender stereotypes, simplifies difficult gender dynamics, and promotes ineffective policies and programmes.

Ultimately, the prevalence of these biases and distortions means that progress toward gender equality is slowed down, and oversimplifications continue to negatively affect gender discourses and policies. Building effective policies and programmes requires considering the unique environmental experiences and limitations of both men and women. This will enable a more sophisticated strategy, ensuring that programmes are created to fit the unique needs of those they are meant to serve, are flexible enough to evolve, and reduce the possibility of unforeseen effects. Women's distinct experiences are not considered when they are portrayed as heroic problem-solvers or passive victims. Such narratives propagate oversimplifications that may further marginalize women by ignoring the opportunity to learn from both genders. Neglecting the significance of gender relations by using misconceptions as the foundation for programme design is flawed, resulting in discrepancies between suggested policies and actual experiences.

The body of knowledge on 'gender and environment' aims to promote gender equality and address the effects of environmental concerns on individuals and communities. It acknowledges that women and men have different relationships with the environment, and that these relationships are influenced by social, political, and economic power imbalances (Mollet and Faria 2013). Primarily, the ‘gender and environment’ literature seeks to promote gender sensitivity in environmental issues (Seagar 2003, Buckingham 2004, Alaimo 2008). Additionally, they aim to close the gender gap by fostering equitable involvement in environmental decision-making (Agarwal 1997, Agarwal 2000, Coleman and Mwangi 2013).

The disproportionate share of environmental difficulties that fall on women is one of ecofeminist scholars' top concerns. They try to include a gender perspective to ensure that environmental policies, programmes, and projects accommodate the needs and experiences of women. The sparse literature on gender and HWC emphasizes the importance of considering gendered implications in environmental policies. The key reason for bringing up the gendered components of HWC is to emphasise how crucial it is to consider gender views in HWC-related policies and regulations. These objectives are honourable, but not flawless.

The *gender equals women* conceptualization in the HWC-related literature is problematic in many ways. Unquestionably, examining women's vulnerability in these contexts intends to provide insight into the distinctive difficulties and experiences women endure in the face of HWC. These include the disproportionate effect of HWC on women's livelihoods as well as the influence of gender roles and norms on women's experiences with HWC. By emphasizing the relevance of women's susceptibility to HWC, researchers want to emphasize the necessity for gender-sensitive methods in designing, implementing, and assessing HWC mitigation strategies. For instance, Ogra (2008) notes that women bear a disproportionate burden of HWC consequences. While I applaud the need for 'increased gender sensitivity in HWC research', the study seems to fall victim to the *gender equals women* illusion. This trend ultimately promotes the essentialist 'myth' that women are the only victims of environmental issues.

Ogra (2008) asserts that, '*taken together, these results suggest that women in Bhalalogpur (and in particular, poor women) disproportionately carry the burden of the indirect effects of HWC*'**.** I argue that although her calls for a 'more socially just', and potentially more effective, conflict mitigation strategies to reduce HWC**,** are laudable, these objectives can only be attained if gendered analysis is free of bias and accurately reflects the effects on both men and women. As a result of an overemphasis on

women, women are portrayed as the protagonists of environmental issues, which is unfavorable. Thus, stressing their fragility risks perpetuating the undesirable image of depicting them as a homogeneous group, which fosters the idea that women and the environment are uniquely linked, obscuring their distinctions (Leach 2007).

The mirage that *gender equals women* is not exclusive to HWC but is prevalent in other disciplines. Although most scholars profess to engage in gender analysis, there is an overemphasis on women and an absence of other gendered human beings - men. Thus, numerous analyses of gender and environment adhere to the view that *gender equals women* rather than theorizing gender (to include both women and men).

The rhetoric around HWC and other environmental concerns, whether emphasizing women's virtue or victimization, has several consequences. First, they generalize the experiences of women without recognizing possible variances. Some feminist scholars advocate the need for a more nuanced understanding of gender via intersectionality. Thus, they highlight the need to examine gender relations through the lens of diverse and linked experiences of privilege. Also, they appeal for a nuanced understanding of how gender intersects with space, location, identities, and lived experiences (Truelove 2011, Elmhirst 2015). This is because the universalization of the *gender equals women* narrative removes the possibility of examining and understanding women's agency across socioeconomic strata and groupings.

The last thing a challenging socio-ecological problem like HWC needs is the *essentialization* of women as a monolithic group, neglecting the processes that lead to gendered subjects, identities, and bodies. There is a widely held idea that women's traditional responsibilities in natural resource management make them more oriented toward conservation and sustainability. However, the evidence is contested. For instance, a study conducted in Indonesia revealed that while men showed greater conservation

values, women were more ready to accept hypothetical offers of converting forests to oil palm and monoculture rubber farms (Villamor *et al.* 2013). These results cast doubt on the notion that women are innately attuned to nature. Although some academics support the essentialization of women, the veracity of their arguments is flawed. They often promote images of women as either helpless victims or heroic saviors. In addition, these assertions give an unduly simplified and sometimes deceptive basis for formulating and implementing policies aimed at achieving gender equality.

In summary, it is crucial not to oversimplify the role of women in conservation and to appreciate the significant limitations they encounter. Oversimplification disregards the differences amongst women and may result in flawed programmes and policies. Women are not a homogenous population. This underscores the need for a more sophisticated and comprehensive approach to comprehending and tackling gender and environmental challenges. Thus, a gender-inclusive strategy is required to comprehend the resource management difficulties experienced by both men and women. It is, therefore, essential to create collaborative resource management groups with equal participation and voice for both genders and by providing stable tenure, information access, and the required supplementary resources for both men and women.

5.6. Perception of gendered impacts

In terms of who incurs a disproportionate burden, interviewees' responses varied. Based on a survey of my interviewees (N=155), only 5.2% said that women were more affected than men, 20.6% said that men were more affected than women, and 74.2% thought that both men and women were equally affected (Figure 12). Although those who believed that men were more affected and those who said women were more affected both based their reasoning on the gendered division of labour, their descriptions varied.

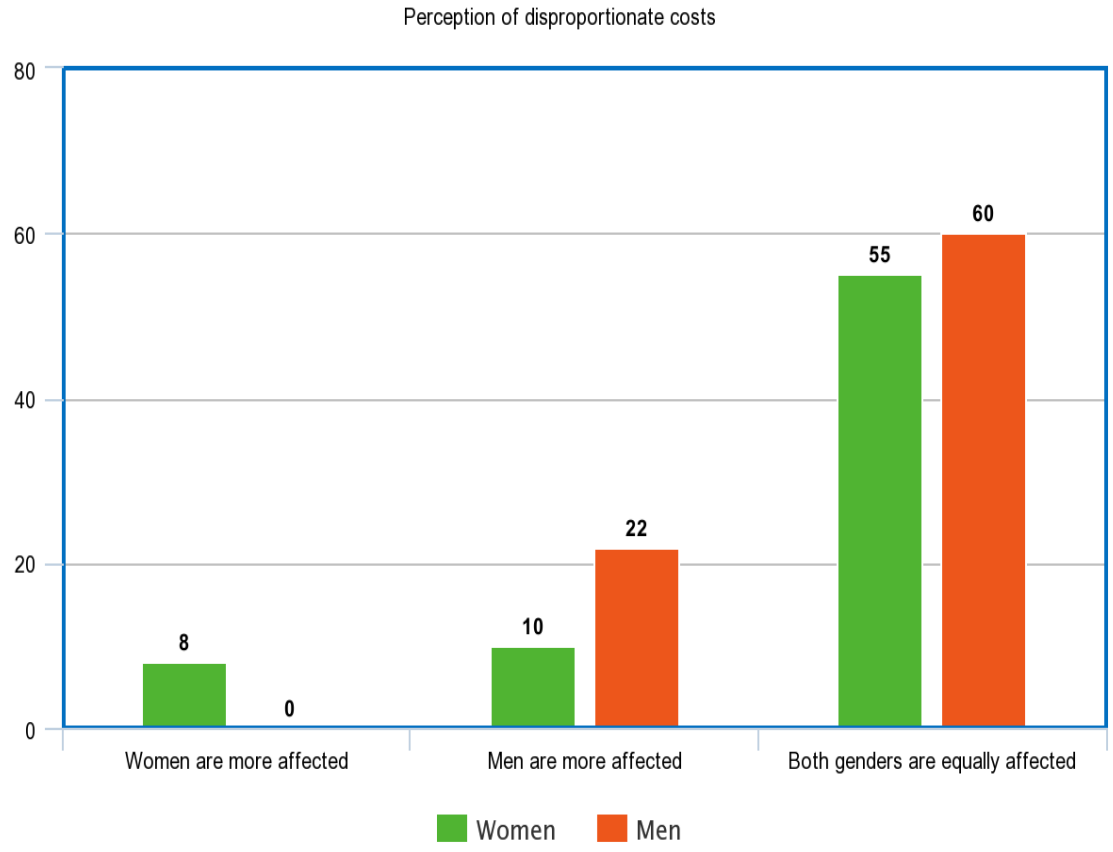


Figure 12. Perception of disproportionate costs (N_{women} = 73; N_{men} = 82; N_{total} = 155)

Those who claimed that men were more affected ascribed their reasoning to the gendered division of labour. According to them, men were mostly responsible for guarding and protecting the crops from being raided since it was their responsibility. Hence, they were more exposed to diseases, physical injuries, and even death. A farmer I interviewed in Tawiah-Nkwanta, who felt men were more affected than women, explained:

I think men are more affected. We are the ones supposed to provide for the family. I can't allow my wife to go and guard the farm. She can't. I might die or get injured when I am on the farm. [Male, 45]

Another male farmer also commented:

I think I am more affected than my wife. If my farm is destroyed, I still have to provide for the family because I am the man. It is my duty to provide for my wife and my children, which I always do. [Male, 48]

Those who claimed that women are more afflicted than men similarly anchored their reasoning on the gendered division of labour. One of the few individuals who said women were more affected lamented:

Take me, for example. I have to look after all these children. They are my responsibility. I have no one to help. I guard my farm; I go to the market, and I do everything. When the elephants came to destroy my crops six months ago, I still have to find ways to feed my children. It is not easy. [Female, 42]

However, the majority of the participants believed that the impacts of HWC are evenly distributed in the household (Figure 12). They believe that when a member of the household is affected, the impact of HWC is shared by the entire household. One man, during focus group discussions, said:

When the animals are hungry, they eat what they see. Whether it is cassava, plantain, maize or pawpaw, they will eat everything, and if they feel threatened, they might attack you. They don't care if you are male or female. [Male, 40]

A woman during the focus group discussions explained:

The same farm feeds the whole family. When the crops are lost, it affects all of us because we are one family. When there is enough farm produce, we all enjoy it and we are happy. And when there is less, we all starve. That is how it is. [Female, 40]

Another woman commented:

When my husband guards and gets malaria from mosquitoes, I take care of him. When I am also sick, he takes care of me. We are one. It doesn't matter who is affected. The park authorities must focus on controlling the animals. That will bring us all peace. [Female, 42]

Thus, despite substantial disparities in the sharing of housework between men and women, both men and women have a strong sense of equity. To begin with, they subscribe to a traditional gender paradigm, as a result of which they accept an unequal division of home labour and consequences. The women embrace an unequal allocation of domestic labour as a necessary component of being a revered wife, regardless of the consequences. For them, an unequal division of labour is something they have become accustomed to as a result of their socialization, and it corresponds to their normative standards, which they feel is legitimate.

In all the communities, there is a cultural predisposition toward gregariousness, group orientation, cooperation, interdependence, and communal success, and to a large extent, self-esteem is based on what an individual can offer to the greater good of the group. An individual does not consider himself or herself an isolated unit; rather, the individual's concern for the growth of the household, sense of belonging to, and responsibility towards the family and community is prioritized. The general cultural orientation in the communities can be described as what Geert Hofstede terms 'collectivist' (Triandis *et al.* 1986), and more so a reflection of the African proverb; Ubuntu - 'I am because we are, and, we are because I am,' the spirit and cooperation between individuals in the communities is a manifestation of this age-old African adage. The essence of Ubuntu is best summed up as; humanity is not anchored only in an individual but 'collective responsibility' with the community's good overriding the individual's welfare.

The case of KCA communities' being collectivist is a reflection of the country's cultural orientation. In the typical Ghanaian household, long-term commitment and loyalty to the family or community take

precedence over individualism. Children are born into a strong, cohesive in-group that protects them throughout their lives in exchange for devotion to the household. Individual identity is shaped by the broader group's collective viewpoint and socialization. In the process of socialization, ideals such as conformity, social convention adherence, and interdependence are emphasized by parents. The need for adult obedience and respect is often normative and frequently typified by higher degrees of control over children. I observed this in the homes of my ethnographic hosts. In several instances where the children would rather be in other places such as school or playing field instead of going to farms to guard crops, compliance was their only option as non-compliance means punishment. The children prioritize the demands of the household while suppressing their personal desires. Hence, authoritarian parenting is the norm and is valued as an appropriate socialization strategy for fostering the development of these attributes.

5.7. Summary

In this chapter, I discussed the elements that contribute to HWC-related risks and vulnerabilities. I further outlined the two principal means by which HWC contributes to HWC-related vulnerabilities: (a) higher exposure and (b) diminished capacity for adaptation. On the one hand, inequalities exist based on criteria such as gender; on the other hand, age and socio-economic position interact with gender to produce additional disparities and vulnerabilities. I explain, using the notion of intersectionality, to show that the relationship between HWC and social-economic inequality is a vicious loop in which pre-existing inequality is exacerbated by HWC, resulting in more inequality. Inequality increases the vulnerability of disadvantaged socio-economic and enhances their susceptibility to HWC-related consequences, regardless of the degree of exposure. Second, inequality diminishes these groups' relative ability to cope with and recover from HWC's effects. As a result, people who are socially marginalised – such as the impoverished and elderly – are disproportionately harmed by HWC.

Additionally, I analysed how HWC's gendered effects are perceived. Despite gendered labour divisions and large disparities in the allocation of household chores between men and women, both men and women have a strong feeling of equality. They subscribe to a traditional gender paradigm, which compels them to accept an unequal division of family labour and its implications. They are used to unequal division of labour as a result of their socialisation, and it is consistent with their normative standards, which they feel are appropriate. In the communities, there is a cultural inclination toward gregariousness, group orientation, cooperation, interdependence, and communal accomplishment, and self-esteem is mainly determined by an individual's ability to contribute to the community's welfare.

Chapter 6 - Influences of Political Ecology on Human-Wildlife Conflict Dynamics

6.1. Introduction

Political ecology entails how complex social, political, and economic systems affect human-environment interactions. It examines how power dynamics, socio-political institutions, and economic pressures affect natural resource management. Understanding the political ecology of HWC is essential for designing effective strategies to minimize the impacts of HWC. This section highlights the social, economic, and political aspects that influence HWC. It examines how socio-political and economic issues affect resource allocation, and natural resource governance. By highlighting the socio-political backdrop, economic considerations, governance systems, and community dynamics, we can gain a comprehensive understanding of the causes, consequences, and possible solutions for HWC management and wildlife conservation.

6.2. Political dynamics

Political factors in political ecology significantly influence human-wildlife conflict. Government policies and regulations often dictate how wildlife is managed and how land use decisions are made, which can either mitigate or exacerbate human-wildlife conflict. Power dynamics and inequalities can shape conflict outcomes: communities with less political power often bear the brunt of conflicts, as they may have limited access to resources for preventing or mitigating wildlife damage. Furthermore, the politicization of wildlife management — for instance, where wildlife is viewed in the context of national heritage or identity — can influence human perceptions and responses to wildlife, thereby impacting conflict situations (Treves and Karanth 2003, Manfredo *et al.* 2009, Lute and Gore 2014, Dressel *et al.* 2015). Thus, the political landscape is integral to understanding and addressing human-wildlife conflict.

6.2.1. Political representation

The crux of political representation lies in ensuring that diverse individuals' interests are represented in institutions and decision-making processes (Paxton and Kunovich 2003). This is a critical component of democratic governance, as it entails more than just the transfer of power. Both descriptive and substantive representation are significant, considering factors such as gender, ethnicity, race, socioeconomic status, and other relevant identities. Political representation also involves vigorously defending and promoting the interests of specific groups or broader social objectives (Kenworthy and Malami 1999, Paxton and Kunovich 2003). In democratic systems, political representation is crucial as it provides the public with a voice in decision-making and prevents the concentration of power in the hands of a select few (Powell 2004).

In Ghana, the right to political representation and the right to equality is enshrined in the constitution, providing both men and women with equal opportunities to participate in politics. Ghana has made significant strides in terms of political representation. In recent years, the country has seen the rise of prominent female political figures, such as the election of its first female Speaker of Parliament in 2006. To address the underrepresentation of women in politics, Ghana has implemented several affirmative action policies. These initiatives, aimed at promoting gender equality, include the establishment of the Ministry of Gender, Children, and Social Protection (Government of Ghana 2013). Additionally, the Local Government Act of 2016 allocated 30% of local government seats to female candidates (Government of Ghana 2016). In the 2020 general elections, there was also an increase in the number of women elected to parliament, with women winning 40 of the 275 seats, or approximately 14.5% of the total (GhanaWeb 2020). While this is an improvement over previous years, it remains below the 30% target set by the National Gender Policy (Ministry of Gender, Children and Social Protection, 2015).

Despite these positive developments, women in Ghana continue to face challenges in achieving political representation. Their participation in politics is hindered by sociocultural norms, patriarchal structures, and limited access to opportunities and resources. Furthermore, women often encounter gender-based violence, discrimination, and stereotypes that dissuade them from engaging in political processes (Osei-Hwedie and Agomor 2018).

The presence of women in politics ensures a broader range of voices and experiences are considered when formulating policies and laws. This diversity leads to more inclusive and effective governance, addressing the concerns of all members of society. Women in politics can advocate for gender equality and champion women's rights within legislative bodies. They often push for policies that promote equal opportunities and are more likely to prioritize issues that directly impact women, children, and marginalized communities, such as gender-based violence, reproductive rights, childcare, equal pay, and family-friendly policies (Wilcox 1991, Lovenduski 2008). Having women in political decision-making roles ensures that these critical issues receive the attention they merit. When women are actively involved in decision-making, there is evidence of improved governance, reduced corruption, enhanced education and healthcare outcomes, and greater investments in social welfare (Goetz 1998). Thus, women's political empowerment contributes to the overall development and progress of societies, as their participation in politics strengthens democratic values and institutions.

Political representation across all sectors, including environmental-related institutions, is crucial. Addressing environmental issues necessitates a diverse and inclusive political landscape to foster egalitarianism and create more inclusive and effective policies that consider individual perspectives and needs. Women's roles in local communities, their relationships with natural resources, and their vulnerability to environmental impacts are unique, resulting in distinct perspectives and experiences (Lamarque *et al*. 2009). Therefore, involving women in decision-making ensures that policies and

actions address their concerns and needs, making HWC management more successful and inclusive (Ogra 2008). Underrepresentation of women in political institutions and decision-making bodies may lead to gender-insensitive policies that overlook the root causes of HWC and exacerbate gender inequities in affected communities.

Women often engage in specialized roles related to resource management, subsistence agriculture, water and firewood collection, and caregiving (Ogra 2008, Lamarque *et al.* 2009). Consequently, they tend to possess extensive knowledge of local ecosystems and traditional ecological practices. Their participation ensures a more comprehensive understanding of the interconnections between communities and wildlife, leading to more effective conservation strategies. When women are underrepresented in political institutions, their perspectives may be overlooked, resulting in gender-insensitive policies that fail to address the specific challenges faced by women in impacted areas.

In Kakum, the participants bemoan the fact that they are not involved in decision making processes. Consequently, some of the decisions taken the officials overlooks local factors such as traditional ecological knowledge, cultural practices, and the socio-economic realities of affected populations. This often leads to ineffective wildlife management practices that disregard local communities' needs. Adequate representation is essential for incorporating local knowledge, addressing the needs of marginalized communities, and ensuring successful policy design and implementation.

The communities near Kakum are no exception, many communities affected by HWC in other African countries often feel overlooked due to lack of political representation. By doing so, policymakers may fail to understand the challenges faced by local people living in close proximity to wildlife. In such cases, policies may neglect the socio-cultural, economic, and ecological context of HWC. This sometimes result in ineffective or unsuitable solutions that do not address the root causes of conflict. Political representation facilitates collaboration and participation among local communities,

conservation organizations, government agencies, and academics in addressing human-wildlife conflict. The absence of representation may hinder conflict reduction efforts, leading to disorganization, misunderstandings, and disagreements regarding strategies. Also, a lack of representation may limit opportunities for affected groups to raise concerns, provide feedback, and hold decision-makers responsible for their actions or inactions. Ultimately, political representation ensures that groups impacted by human-elephant conflict are heard and represented in decision-making. Representatives can highlight the concerns of affected communities and seek solutions. Representatives can actively participate in policy debates, contribute ideas from their constituencies, and develop policies that incorporate socio-economic context, community needs, and environmental factors.

6.2.2. Policy priorities

Policy priorities are the areas of utmost importance and urgency that policymakers and government authorities identify, requiring immediate attention and action (Jacoby *et al.* 2001). These priorities are shaped by the specific needs, challenges, and objectives of a particular nation or group of people. Different policy priorities may be relevant depending on the context, influenced by factors such as political objectives, public opinion, economic conditions, social issues, and emerging challenges. Short-term and long-term policy priorities guide the allocation of resources, formulation of policies, and implementation of programs to address identified concerns. However, it is important to note that policy priorities are dynamic and can evolve over time in response to new problems, events, and public sentiment (Castañeda *et al.* 2018).

Policy priorities have a direct impact on the funding and staffing of human-wildlife conflict initiatives. When human-wildlife conflict is prioritized, governments and conservation agencies allocate more resources to mitigation efforts, research, and community support. Adequate resources are crucial for the implementation of effective measures such as wildlife corridors, early warning systems, and community

compensation. Conversely, if human-wildlife conflict is not given sufficient priority, limited resources may result in insufficient or delayed responses, exacerbating conflicts.

Policy objectives significantly influence the management of HWC, encompassing resource allocation, policy formulation and implementation, research investment, community participation, and public awareness. In countries such as Namibia and Bhutan (NPPC and WWF-Bhutan 2016, MET 2018), their respective HWC policies prioritize proactive approaches, community engagement, and sustainable coexistence between humans and wildlife to address the issue holistically. Since, the inception of democratic governance in 1992, HWC has not been a policy priority in Ghana. The policy priorities in Ghana have always been centred on poverty reduction, healthcare, education, and infrastructure (Awumbila 2006, Whitfield 2015). These agendas have consistently been central to Ghana's development strategy since 1992.

Ghana, like many developing countries, poverty reduction is frequently prioritized in development efforts to enhance people's well-being and livelihoods, addressing basic needs such as food, housing, clean water, education, and healthcare. Similarly, improving healthcare infrastructure, coverage, disease prevention, literacy rates, and the quality of education requires significant investment in infrastructure, teacher training, curriculum development, and educational resources. These pressing socio-economic priorities may divert attention from long-term environmental issues like HWC. Thus, policymakers tend to focus on poverty, healthcare, education, and infrastructure due to their immediate impact on people's lives. These urgent concerns may overshadow the need for comprehensive HWC policies, which are longer-term and indirect in nature. Consequently, long-term environmental issues, including HWC, are overlooked or neglected.

Since becoming a multi-party democracy in 1992, Ghana has pursued core policy initiatives to address socio-economic concerns and promote sustainable development. Poverty alleviation and economic

growth have been prioritized in the government's policy strategy. Measures such as the National Poverty Reduction Programme, National Medium-Term Development Plan, and Ghana Shared Growth and Development Agenda aim to reduce poverty, foster inclusive development, and improve living standards (Government of Ghana 2003). Efforts have also been made to enhance healthcare access and social protection in Ghana. Noteworthy initiatives include the National Health Insurance Scheme (NHIS), Community-based Health Planning and Services (Gobah and Liang 2011), and the Livelihood Empowerment Against Poverty (LEAP) cash transfer program. These initiatives have contributed to improved social protection for vulnerable citizens, and increased healthcare coverage. Although these policy priorities are relevant, prioritising HWC as a policy priority would be crucial in wildlife conservation in Ghana.

6.2.3. Institutional capacity

Institutional capacity refers to the ability of an institution to effectively fulfill its responsibilities and accomplish its mission. It encompasses various components, including infrastructure, regulations and procedures, organizational structures, financial resources, and human resources. The Ministry of Environment, Science, Technology, and Innovation (MESTI) in Ghana has faced challenges in fulfilling its role in environmental management and conservation, primarily due to financial constraints. Insufficient financial allocation is a key issue for the ministry. Like many government organizations, MESTI relies on government funding to carry out its operations and programs. However, the allocated budget may not always be sufficient to address the wide range of environmental activities and challenges the ministry faces. This lack of funding hinders its ability to effectively undertake essential tasks.

Institutional capacity is essential for government agencies like the Wildlife Division, conservation organizations, and other stakeholders to effectively address HWC. However, considerations such as funding, staffing, and training can hinder the development and implementation of conflict resolution

strategies. Thus staffing, training, and financial resources are crucial in addressing HWC. Staffing has a significant impact on the ability to address HWC concerns. For example, in the Wildlife Division office in Abrafo, there are only three members of staff in the community liaison department who are responsible for all the communities surrounding the park. Furthermore, limited financial resources contributes to personnel issues within the ministry. Insufficient resources make it challenging to attract and retain skilled experts, limit training opportunities, and impede the hiring of suitable personnel. This, in turn, affects the ministry and its agencies' (such as the Wildlife Division) capacity to address environmental issues and provide sustainable solutions.

Training also plays a crucial role in equipping staff with the necessary skills to effectively manage concerns related to HWC. Untrained personnel may struggle to identify, analyze, and address gender issues. This deficiency can perpetuate gender-blind approaches that overlook the diverse needs, roles, and vulnerabilities of men and women in human-wildlife conflict situations. It is essential for employees to have a comprehensive understanding of gender dynamics to establish and implement gender-sensitive initiatives. Offering training programs that focus on gender analysis and incorporating gender perspectives is crucial for developing the required skills and competencies among staff.

Institutional capability has a significant impact on the overall outcomes of HWC. MESTI and its agencies having institutional capacity would make them capable of developing and implementing policies, engaging stakeholders, monitoring conflicts, providing training and support, enforcing regulations, and fostering collaboration. Thus, their underfunding means that they lack the capacity to deal with HWC and this has dire consequences.

As a relatively weak institution, the Wildlife Division is unable to adequately intervene promptly in HWC, resulting in more frequent and severe confrontations. In response to perceived threats, people resort to unsafe measures to protect their farms and crops. Insufficient community engagement and

empowerment also pose challenges as the Wildlife Division lacks the capacity to actively involve local communities in conflict resolution strategies. A well- funded Wildlife Division could have the capacity to monitor human-wildlife conflict incidents, assess conflict intensity, and identify emerging hotspots and implement warning signals. Early warning systems enable prompt response and prevention. However, they lack the capacity; hence they encounter challenges in monitoring conflicts, gathering accurate data, and effectively communicating with stakeholders, which hampers their ability to respond to HWC occurrences.

Insufficient funding of the Wildlife Division has severe consequences. Their underfunding limits resources and hinder conflict prevention, monitoring, research, community participation, and regulatory enforcement. These constraints increase the vulnerability of communities to HWC incidents, impede the implementation of sustainable mitigation strategies, and prolong conflicts that adversely impact both humans and wildlife. To address the financial issues faced by MESTI, a multifaceted strategy is necessary. This strategy should encompass increased government funding and improved budget planning and utilization. By providing sufficient funding to the ministry, Ghana can enhance its environmental management efforts and move towards a more sustainable future.

6.3. Social complexities

Political ecology provides an important lens through which to view human-wildlife conflict, emphasizing the role of social factors in shaping these interactions. Socioeconomic disparities, policy decisions, and power dynamics play a substantial role in determining the nature and extent of human-wildlife conflicts. Social norms, cultural beliefs, and historical interactions with wildlife can also shape perceptions of and responses to human-wildlife conflict, leading to differences in tolerance towards wildlife and approaches to conflict management. The expansion of agricultural activities can also provoke HWC, as wildlife may be attracted to certain crops, leading to retaliatory actions by humans.

Socioeconomic status plays a crucial role too; often, lower-income communities are more dependent on natural resources and, therefore, more likely to come into conflict with wildlife. Additionally, cultural attitudes and beliefs about wildlife can affect how conflict is perceived and managed.

6.3.1. Social norms and roles

Social norms define acceptable and undesirable behaviour in society (Jones *et al.* 2008, McDonald *et al.* 2014). Traditional, religious, and modern factors define Ghanaian societal norms and exert significant influence on the impacts of HWC through various channels. Social norms and gender roles, which are deeply entrenched in Ghana, shape the ways in which individuals and communities interact with wildlife and affect how they perceive and respond to HWC. Acknowledging and addressing these influences is essential for devising effective, inclusive, and sustainable solutions to HWC; and fostering conservation efforts that benefit both people and wildlife. Some of the primary ways in which social and gender norms influence HWC include:

Roles and Responsibilities: In Ghana, gender norms delineate the roles and responsibilities assigned to men and women, leading to differences in exposure to wildlife and HWC. For example, in Ghana and many African societies, women frequently engage in agricultural tasks, firewood gathering, and water collection, whereas men are generally responsible for hunting, fishing, and community protection (Lambrecht *et al.* 2018). These distinct roles result in unique experiences and vulnerabilities to HWC for each gender. For example, crop-raiding by wildlife may disproportionately impact women, who often bear responsibility for domestic food production (Ogra 2008). Conversely, men who engage in hunting are more prone to conservation offences (Mariki 2016). Thus, HWC can disproportionately affect the livelihoods of men and women due to gender-specific roles and responsibilities.

Perceptions and Attitudes: Social and gender norms can shape individuals' perceptions of and attitudes toward wildlife and HWC. For example, certain societies might regard particular animals as sacred

(Hens 2006, Diawuo and Issifu 2015) or associate hunting with masculinity (Leach 2000, Bitanyi *et al.* 2012). In Kakum, for instance, the gender division of labour and the perception that men are responsible for hunting translates into more men being arrested for conservation offences.

Access to Resources and Decision-making: Gender norms often determine access to resources, education, and decision-making power within many societies (Czech *et al.* 2001). This can lead to disparities in the capacity of men and women to effectively respond to HWC. Women may experience limited access to financial resources hindering their ability to implement HWC mitigation measures. Additionally, women frequently remain underrepresented in decision-making processes related to natural resource management and HWC, resulting in biased policies and interventions (James *et al.* 2021).

Adaptation and Coping Strategies: Social and gender norms influence the strategies individuals and communities employ to cope with and adapt to HWC. Women might depend more on social networks and informal knowledge sharing, while men may depend on formal channels (Phan *et al.* 2019). Recognizing and addressing these gender-specific strategies can enhance the effectiveness of HWC mitigation efforts.

Societal norms play a significant role in shaping decision-making processes and conflict resolution strategies related to human-wildlife conflict (HWC). These norms can influence wildlife management and resource allocation. Gender roles and responsibilities within communities can determine the level of exposure to wildlife and HWC. Consequently, these gender-specific roles can lead to differences in HWC experiences and vulnerability levels.

6.3.2. Social support

Social support for those affected by HWC entails cooperation, solidarity, as well as the resources, and services that enable people and communities to deal with human-elephant interactions. This support is important for knowledge sharing, implementing preventive measures, and ensuring the well-being and resilience of affected communities in their interactions with elephants. Although most of this support is relevant, it is often lacking in HWC hotspots in Ghana.

Local communities need social support in order to be resilient to the impacts of HWC. Strong social support can help communities share knowledge, resources, and strategies to reduce conflicts and develop sustainable solutions. Social support networks can facilitate the exchange of HWC experiences. Knowledge helps communities learn from each other's triumphs and failures; and adopt best practises in order to minimise the impact of HWC. Also, social support in the form of open communication and stakeholder involvement can help resolve issues constructively and mutually, encouraging understanding, empathy, and long-term solutions.

In Kakum and other HWC hotspots in Ghana, the lack of social support means that there is limited knowledge and information sharing. Social support networks could help spread wildlife behaviour, conservation, and conflict reduction knowledge. Without such networks, communities may not know much about wildlife movements and behaviours. These metamorphoses into poor or inadequate responses to human-wildlife interactions, causing more damage and bad encounters. Social support requires trust in key stakeholders like conservation organisations and government agencies. This can help both locals and organisations to collaborate and engage in mitigation measures.

Conversely, lack of social capital—poor social networks, and low trust can worsen HWC in numerous ways;

(a) Poor Information Sharing: Without robust social networks, community members may not learn about wildlife hazards or mitigation options. This makes some people more vulnerable to wildlife conflict and less prepared to handle it.

(b) Ineffective Collective Action: Wildlife barriers and community patrols necessitate collective action. Wildlife conflicts may increase if the community lacks social capital to organise these measures.

(c) Difficulty in Conflict Resolution: Human-wildlife conflict can lead to community disputes about wildlife conservation expenses and benefits. Without high social capital, these disagreements might be harder to resolve, dividing communities and worsening wildlife conflict.

(d) Non-compliance: Communities with inadequate social support may struggle to enforce local rules and regulations designed to manage shared resources and reduce human-wildlife conflict. Also, low social support may make communities less resilient to HWC-related shocks. In addition, low social support can also hinder communities' engagement with government agencies, NGOs, and other wildlife management and conflict mitigation organisations. In conclusion, individuals and groups without significant social support may struggle to prevent, manage, and recover from the impacts of HWC.

6.3.3. Access to information and resources

HWC necessitates the availability of information. Timely, accurate, and relevant information empowers individuals and communities to make informed decisions, adopt best practices, and develop strategic measures. Understanding elephant behavior, migration patterns, and feeding habits can assist communities to be pro-active. Information regarding wildlife movement can serve as an early warning system, alerting locals about imminent conflicts and enabling communities to protect their properties. Knowledge of proven conflict mitigation strategies, such as the use of deterrents, barriers, or elephant-

resistant crops, can help communities minimize the impact of HWC on their lives and livelihoods. Access to information allows communities to learn from successful coexistence tactics.

Furthermore, information access can create awareness about the importance of conservation, fostering a sense of shared responsibility and inspiring community engagement in addressing HWC. It can also help dispel misconceptions or myths about elephants, leading to a more informed and empathetic approach to conflict resolution. Ensuring equal access to information is crucial for marginalized groups in managing HWC. Targeted outreach and education, effective communication channels and formats, and inclusive and participatory decision-making processes can facilitate this goal. Equipping communities with the necessary information to navigate HWC enables stakeholders to support the development of sustainable and context-specific solutions that benefit both people and wildlife.

Information access also plays a critical role in influencing HWC at the individual and community levels. It can prevent, mitigate, and resolve disputes by enhancing awareness of wildlife behavior, migration patterns, and potential threats, thereby enabling communities to enhance their preparedness.

The adoption of effective mitigation measures relies on access to information about proven conflict management strategies. Such knowledge empowers communities to implement measures that effectively reduce the impact of conflicts on their lives and livelihoods. Conversely, the lack of information access leads to inadequate preparedness. Without knowledge of elephant behavior, migration patterns, and associated risks, communities may be ill-prepared for conflicts, rendering them more vulnerable and exacerbating the damage to lives, property, and livelihoods.

Delayed or inappropriate responses to conflicts can also result from a lack of early warning systems or accurate information. In the absence of timely and precise information, communities may struggle to respond promptly and appropriately, thereby intensifying the impacts of HWC. By equipping

communities with the necessary information, stakeholders can contribute to the development of sustainable and equitable conflict management solutions. Promoting inclusive and equitable information dissemination, utilizing appropriate communication channels and formats, and ensuring the active participation of all community members in decision-making processes is important. Stakeholders can improve HWC management for both humans and elephants by empowering communities with the knowledge and resources they require.

Managing human-wildlife conflicts also necessitates the allocation of resources. However, sociocultural factors often contribute to gender-based disparities in resource access, which can disproportionately disadvantage women in various ways. Local communities frequently encounter obstacles in accessing HWC management measures and best practices. Access to and availability of resources are essential for implementing measures. In Kakum, the absence of adequate resources to mitigate the impacts of HWC exacerbates the vulnerability of both women and men. This leads to increased instances of crop-raiding. Many community members lack the necessary funds to invest in preventive measures such as physical barriers, early warning systems, or crop protection, leaving them more susceptible to the negative impacts of human-wildlife conflicts.

6.4. Economic factors

Economic factors play a crucial role in influencing human-wildlife conflict. Primarily, these conflicts arise when economic activities encroach upon natural habitats, resulting in a shrinking of the space available for wildlife. For instance, the expansion of agricultural activities, logging, and the building of infrastructure can lead to habitat degradation and fragmentation. This, in turn, can force animals to venture into human settlements in search of food and space, leading to conflicts. Additionally, impoverished communities may rely heavily on natural resources for their livelihoods, leading to over-exploitation and conflicts with wildlife. For instance, communities may hunt wildlife for food or engage

in illegal wildlife trade as a means of income, leading to increased tensions. Conversely, the loss of crops to wildlife can have significant economic impacts on these communities, further exacerbating the conflict. Thus, economic factors, including poverty, land use, and resource exploitation, can significantly influence the dynamics of human-wildlife conflict.

6.4.1. Poverty

The Central Region of Ghana, like other regions, has a high poverty rate as compared to other regions. With almost 47% of its 3 million residents living in poverty, the Central Region placed sixth out of the country's 10 traditional regions in terms of the prevalence of poverty, accounting for 9% of the overall prevalence of poverty nationwide (UNDP 2020). The proliferation of poverty affects every sector including wildlife conservation. Poverty and HWC are intricately intertwined through a multifaceted nexus of factors that amplify the detrimental consequences on communities and impede mitigation endeavors.

One pivotal element related to poverty is the limited availability of alternative livelihood options for impoverished communities. Most of the communities often experience restricted access to income-generating opportunities, heightening their vulnerability to the economic repercussions of HWC. Consequently, these communities may face difficulties in recovering from conflicts and adapting due to inadequate diversification. Furthermore, poverty constrains their capacity to invest in essential mitigation measures thereby exacerbating the ramifications of HWC.

Additionally, poverty compels communities to intensify agricultural activities or exploit forest resources to fulfil their needs, resulting in encroachment into wildlife habitats. This escalation of HWC not only undermines human livelihoods but also jeopardizes wildlife populations. Retaliatory behaviors and criminal activities represent further consequences of poverty in the context of HWC. Impoverished communities sometimes resort to poisoning, hunting, or engaging in illicit activities such as poaching

to recoup their losses. These actions not only aggravate HWC but also damage ecosystems and compromise conservation efforts.

Addressing the intricate relationship between poverty and HWC necessitates comprehensive strategies that emphasize alternative livelihood opportunities, sustainable resource management, and effective conflict mitigation. By tackling poverty and empowering communities, the adverse effects can be alleviated, and resilient and sustainable ecosystems can be cultivated.

A prominent factor contributing to the complexity of human-wildlife conflicts is the limited availability of alternative livelihood options for impoverished communities, leading to encroachment upon wildlife habitats. This intensification of human-wildlife conflicts not only endangers human livelihoods but also imperils wildlife populations. Moreover, low incomes present substantial challenges for numerous rural Ghanaians who depend on subsistence agriculture and the informal sector. These revenue sources are prone to fluctuations influenced by market pricing, weather conditions, and seasonal variations, culminating in meager and inconsistent incomes. To address the intricate relationship between poverty and human-wildlife conflict, comprehensive strategies that encompass alternative livelihood opportunities, sustainable resource management, and effective conflict mitigation measures are essential. By tackling poverty and empowering communities to adapt to human-wildlife conflicts, it becomes feasible to alleviate negative consequences and cultivate resilient and sustainable ecosystems.

6.4.2. Market forces

The economic variables or market forces also influence HWC. For instance, the demand for bushmeat and poaching products is driven by market forces. Cultural preferences supposed therapeutic benefits, status symbols (ivory), or scarcity of protein sources are also necessitated by demand. Hunters and dealers may overhunt wildlife if prices rise. Bushmeat trade and poaching market pressures drive wildlife hunting and consumption.

Poaching and illicit wildlife trading pose substantial threats to ecosystems, species survival, and global biodiversity. In places like Kakum with limited alternative revenue sources, economic incentives propel these activities. Some individuals perceive poaching as a means to generate income and support their families. Socioeconomic factors play an instrumental role in fostering these activities. Unemployment, low wages, and resource scarcity contribute to economic hardships. These conditions incentivize individuals to engage in poaching and wildlife trafficking as a means to make ends meet. Such actions may be perceived as obligatory for men who are traditionally expected to provide for their families.

The global demand for wildlife products can drive up prices and creating lucrative opportunities for traders. Consequently, these activities become enticing for people, particularly men, seeking financial gain. Poaching and illicit wildlife trading are especially appealing in areas where sustainable livelihood options are scarce.

Cultural and social norms also play a significant role in perpetuating poaching and wildlife trafficking. Certain cultures endorse hunting as a traditional or prestigious activity. Economic incentives, coupled with societal approval, contribute to the perpetuation of the poaching cycle. The depletion of wildlife populations carries far-reaching consequences. Unsustainable hunting of species results in population declines, disrupting ecosystems. Poaching also removes keystone species and alters predator-prey dynamics, disrupting ecosystem balance. For example, the removal of top predators can result in overpopulation of prey species, leading to crop-raiding or property damage as they search for food. This further exacerbates HWC.

Additionally, poachers frequently encroach upon wildlife habitats to pursue their hunting activities, which increases human presence in these areas. Encroachment results in habitat loss, degradation, and fragmentation, bringing wildlife into closer proximity to human settlements and heightening the potential for conflict.

Locally, the bushmeat trade supports rural communities by providing livelihood opportunities for hunters, dealers, and processors involved in the industry. Market demand and prices are influenced by Ghanaian culture, taste preferences, and traditions, driving the demand for bushmeat. Various actors, such as hunters, butchers, middlemen, transporters, and merchants, find employment within the bushmeat trade. Both domestic trade within Ghana and trade with neighboring countries exist to meet the demand. However, it is important to note that Ghana's bushmeat trade is predominantly informal and illegal. This has implications for revenue generation, regulation, and sustainability.

Cultural preferences play a vital role in driving the consumption of bushmeat among Ghanaians. Bushmeat holds cultural, religious, and culinary significance for many communities. In certain cultures, the consumption of bushmeat is deeply rooted in culinary traditions and cultural practices. In areas where access to these protein sources is limited or the cost is high, bushmeat continues to remain popular. Health beliefs and perceptions also contribute to the demand for bushmeat. Some consumers hold the belief that certain bushmeat species possess health benefits, which drives their demand. Additionally, wildlife products with perceived traditional medicinal properties can sustain market demand. Thus, market forces increase the risk of individuals coming into contact with wildlife thereby resulting in conflict.

6.4.3. Overdependence on natural resources

Overdependence on natural resources transpires when communities excessively rely on specific natural resources to fulfil economic, social, and sustenance needs. This overdependence leads to unsustainable practices, ecological degradation, and susceptibility to resource depletion and environmental shocks. Several factors contribute to Ghana's natural resource dependency. First, Ghana's economy heavily depends on agriculture, particularly small-scale farming, for employment and revenue generation. However, an overreliance on cash crops such as cocoa or unsustainable agricultural practices like slash-

and-burn farming can result in soil depletion, deforestation, and increased vulnerability to climate change.

Second, Ghana's forests provide valuable resources, including timber, non-timber forest products, and ecosystem services. Regrettably, overexploitation, illicit logging, and unsustainable forestry practices have led to deforestation, habitat loss, and ecological imbalances. And third, Ghana boasts numerous protected areas rich in biodiversity. However, unsustainable hunting, illegal wildlife trading, and improper tourism practices pose threats to ecosystems, wildlife populations, and the tourism industry.

Overreliance on natural resources heightens community vulnerability and exacerbates HWC, with several associated impacts. Overreliance on natural resources can result in overexploitation and depletion, intensifying competition between humans and wildlife for limited resources such as land, water, or food. For instance, In Kakum, communities continue to expand their agricultural activities or exploit forest resources to fulfil their needs, leading to habitat loss, fragmentation, and degradation. This encroachment brings humans and wildlife into closer proximity, increasing the likelihood of conflicts and magnifying their consequences.

Facing economic pressures, most individual often depend on natural resources, and resort to harmful practices such as retaliatory killings and ineffective deterrents. These actions not only harm wildlife populations and ecosystems but also contribute to a vicious cycle of increased conflicts, further jeopardizing the well-being of both humans and wildlife.

Furthermore, due to limited livelihood options and heavy reliance on agriculture, forestry, and fishing, most of the communities surrounding Kakum, excessively exploit natural resources. Reliance on natural resources hinders livelihood diversification, making them more vulnerable to economic shocks and limiting their ability to adapt to changing conditions. Overreliance on natural resources also leads to

encroachment into wildlife habitats, intensifying competition for scarce resources. Consequently, this exacerbates human-wildlife confrontations, resulting in harm to both human communities and wildlife populations.

Villagers place significant value on forest resources, particularly non-timber forest products such as fruits, nuts, mushrooms, honey, medicinal plants, and wild game. These resources play crucial roles in ensuring food security, generating revenue, and upholding cultural traditions. Harvesting these resources supports subsistence needs as well as local markets. Additionally, given the proximity of the park, residents have the opportunity to gather fuelwood from park trees and bushes to meet their cooking and general household energy requirements.

Economic factors also play a significant role in driving the overdependence on natural resources. Many individuals rely on resource-based activities such as agriculture, fishing, mining, and forestry for income generation. This reliance often stems from economic hardship in rural areas, characterized by a lack of diversification, limited access to financing and markets, and insufficient industrialization. Furthermore, poverty and limited alternative livelihood options contribute to the overdependence on natural resources. In impoverished areas, resource-based activities are often perceived as the most viable and sustainable means of income generation. The lack of education, skills, and infrastructure further reinforces the reliance on natural resources for income generation. Thus, the overreliance on natural resources means that there is an increased risk of human interaction with wildlife resulting in conflict.

6.5. Summary

A complex interaction of social, economic, and political issues, all of which can be viewed through the lens of political ecology, affect human-wildlife conflict in Ghana, as it does in many other countries. Thus, conflicts between people and wildlife in Ghana are shaped by a complex interaction of social, political and economic factors. The social aspects that affect human-wildlife conflict in Ghana include

societal norms, community attitudes toward wildlife. A significant impact is also played by economic pressures like poverty, coping mechanisms, and market forces. Communities that depend significantly on agriculture, for instance, might have increased confrontations with wildlife. Also, because those who are economically challenged may be more likely to overly depend on wildlife resources for immediate survival requirements, poverty may make human-wildlife conflicts worse.

Chapter 7 - Recommendations and conclusion

7.1. Introduction

The previous chapters (3, 4, and 5) explore the findings of my research questions. This chapter presents a summary of the research findings, and their potential relevance to other HWC hotspots. It highlights the unique addition of this study to the pre-existing body of knowledge on the subject..

7.2. Gender mainstreaming

A significant way of ensuring gender equity is through gender mainstreaming in HWC-related policies, and institutional and legal frameworks. Gender mainstreaming is defined by ECOSOC (1997) as:

"the process of assessing the implications for women and men of any planned action, including legislation, policies or programmes, in all areas and at all levels. It is a strategy for making women's as well as men's concerns and experiences an integral dimension of the design, implementation, monitoring and evaluation of policies and programmes in all political, economic and societal spheres so that women and men benefit equally and inequality is not perpetuated. The ultimate goal is to achieve gender equality."

Examples of successful gender mainstreaming

Globally, initiatives differ in their degree of integration of gender equality into environmental plans and policies. Gender issues have gained increased attention in international environmental fora since the 1992 United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro. Gender problems are now firmly embedded in a number of platforms, including the United Nations Convention on Biological Diversity (CBD), and the United Nations Framework Convention on Climate Change (UNFCCC). Numerous national-level environmental policies and plans also have a gender equality component. For instance, in Rwanda, gender equality and environmental problems have been

effectively incorporated into the country's economic development and poverty reduction plan, with budgeting cycles aligned around these goals (UN Environment 2016).

The majority of OECD countries have a national gender strategy that necessitates gender mainstreaming in all policies. This is often accomplished via the gathering of gender-disaggregated data, and gender-based analysis. Also, nineteen OECD nations address gender issues in environmental policymaking on a systematic or ad hoc basis. They promote gender equality and women's empowerment by incorporating into policies on climate change, especially in agriculture and forestry; and women's involvement and leadership in environmental decision-making (OECD 2020).

In Spain, the Ministry for Ecological Transition and Demographic Challenge incorporates gender mainstreaming concerns into the policies and initiatives it adopts (OECD 2020). The aim is to maximize job possibilities throughout the transition to low carbon and sustainable economy. Also, Mexico's National Program for Gender Equality focuses on measures to integrate gender into climate change-related public policy tools, as well as to address the demands of women (USAID 2017). In 2018, Sweden's Environmental Protection Agency began applying a gender perspective to its assistance for jobless individuals and immigrants to the country (former refugees) seeking employment in forestry (Wikström and Sténs 2019, Singleton 2021).

Development cooperation agencies in the OECD - Development Assistance Committee member countries[13] have long emphasized the need to incorporate environmental and gender issues into

[13] The OECD Development Assistance Committee is a unique international forum of many of the largest providers of aid, including 30 members: Australia, Austria, Belgium, Canada, Czech Republic, Denmark, European Union, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, The Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, United Kingdom, United States

development cooperation and programmes. For instance, the Swedish Development Agency, SIDA, has included gender analysis in its programs in developing nations. By doing this, they can map possibilities and obstacles, as well as the gender-differentiated impacts. Additionally, they gather gender-disaggregated data, which allows them to assess the effect of policies (SIDA 2016).

Gender mainstreaming is critical for ensuring the comprehensiveness of not just HWC policies and programmes, but also women-focused policies that encourage and empower women to act on their own behalf. Failure to do so risks entrenching gender disparities owing to cultural norms and intrinsically inequitable power relations and the underlying assumptions that drive HWC management. The recommendation of gender mainstreaming is a viable policy option for combatting HWC in KCA. This approach encourages more equitable gender interactions and despite the barrage of criticisms towards the concept (Bacchi and Eveline 2009, Crușmac 2015, Milward *et al.* 2015, Huning 2020), I concur with Lessa and Rocha (2012), that gender mainstreaming can hardly be abandoned due to its transformational, revolutionary potential, and can become a success in this scenario if it is fully backed by political will. The following are steps that could be taken to ensure gender mainstreaming in prospective HWC-related policies and legal frameworks.

Step 1: Profiling and data collection

Understanding the conflict encompasses delving into the immediate causes, proximate causes, intensity of conflict, as well as the geographical, political, economic, temporal, and socio-ecological aspects of the conflict. If this information is lacking, it leaves managers and decision-makers with little capacity to offer effective management strategies. Literature reviews, interviews, focus group discussions and surveys are all possible methods for collecting such data (ENERGIA 2012). Additionally, pre-existing data such as those generated by recent evaluations or surveys may be used to aid in the analysis. Whichever method of data collecting is utilized, ethical considerations should be prioritized. The data

collected ought to be analyzed by identifying the various responsibilities, requirements, and interests of people belonging to various social groupings. In order to capture subtleties, the data should be disaggregated by project-relevant social categories (UNDP 2004, Elias 2013, Aguilar 2014, Murthy 2016). Additionally, experts who are acquainted with the area and subject matter should be consulted as they can shed more insight into the most significant pre-existing social vulnerabilities that already exist in the area.

Step 2: Identifying hurdles and opportunities and formulating solutions

The information and insight obtained from the analysis ought to be evaluated and converted into project actions that handle the identified risks, maximise conservation benefits and also ensures that livelihoods are protected. Solutions that improve the circumstances and opportunities for those that are disadvantaged in particular ought to be prioritized (GenderCC 2009). These solutions can be generated in collaboration with the community leaders and key stakeholders so as to ensure that they are culturally acceptable. Risks and opportunities could be identified by finding answers to key questions such as:

• How could the initiative have a differential effect on men and women from various social groupings?

• Do men and women have equal chances to gain (both actual and perceived) from the initiative?

• Does the design of the initiative take into account the interests of both men and women?

• Do any unexpected dangers present themselves?

• What are the major obstacles (cultural, societal, and political) to men's or women's involvement that have been identified?

This phase also requires a thorough understanding of the sociocultural environment and should be conducted with as many informed stakeholders and partners as feasible to foster the process.

Step 3: Monitoring and evaluation

Regular monitoring is necessary to verify if initiatives are relevant and effective; it will also allow responsive or corrective action where and when necessary (Waal 2006). Evaluation may also be used to reflect on the project's strategy, aims and objectives, and lessons gained in order to influence future project designs (FAO 2001, Bustelo 2003, FAO 2012). While monitoring gathers data for feedback, evaluation will be focused on analyzing and evaluating the project's effectiveness. For instance, what effect did the initiative(s) have on men and women? How effectively have gender considerations been included in the design, execution, and monitoring phase? What were the project's difficulties and achievements? How can we use this knowledge to increase the effectiveness of new initiatives? and how can new initiatives be designed to address the needs of both genders?

A crucial element is also having a project debrief and reflecting on lessons learnt for application in the future. Monitoring is critical to ensuring that HWC-issues are managed effectively. Any programme implemented for managing HWC in KCA must be able to demonstrate that it is accomplishing the intended outcomes and objectives. Without comprehensive monitoring programmes, the park officials and managers will be unable to equitably distribute resources and advise communities on the most effective preventative measures. The absence and effective monitoring and evaluation in the management system might jeopardize any prospective HWC management programme(s).

Step 4: Reporting and community engagement

Individuals need access to HWC information in order to adjust and prepare appropriately. First, local residents must grasp the immediate problems and trends influencing HWC in their vicinity. Second, locals must have access to lessons learned elsewhere and apply them locally. A national database platform to encourage information exchange on HWC is critical in order to share conflict information, suggestions, best management practices, creative solutions and their results. A well-designed local

information system might make it possible to easily access public reports accessible through locally appropriate channels. Additionally, the information system should incorporate continuous education about wildlife conservation, as well as citizen science activities conducted via schools and local community forums.

To facilitate information sharing nationally, platforms may be created, while a suite of current methods could be utilised to circumvent problems related to a lack of internet in some communities. These include seminars, television shows and radio programs. Educational materials, and information on high-risk areas with connections to other relevant and helpful websites, such as those of the IUCN and WWF, should all be available via the platform. Also, making available a local reporting system that integrates local conflict knowledge and lessons learned would be of great assistance to locals.

Prospective HWC interventions in KCA need a quick reporting system that enables rapid reaction and ensures data and information are collected and fed back into the programme. For example, In Indonesia, a communications scheme was established in which disputes were reported to a phone number designated as the 'Conflict Hotline' (Nugraha and Sugardjito 2009). Similarly, Zimbabwe and Mozambique have created a nationwide SMS-based system that is effective. The system was able to take information from a field officer, confirm receipt, put data into a national database and, depending on the situation, notify the appropriate services by SMS. In Indonesia, an NGO coalition established an internet site for the purpose of documenting HWC occurrences. This is a somewhat low-cost, method of collecting and handling data, but it requires continuous maintenance to remain operational. Combined with an SMS-based reporting mechanism, this system may prove to be a cost-effective system if implemented in KCA and other HWC hotspots in Ghana. Also, for the reporting systems to be successful, it must be user-friendly and fully resourced, connected to incentives and backed by political will.

Compensation schemes is an option that is worth exploring to deal with the impacts of HWC in Kakum. To begin, it is important to ensure that compensation payments match current market prices for the losses that have been experienced. I suggest that the park management collaborate with non-governmental conservation groups to assist in the process of fund-raising; and if financial compensation is going to be used as a strategy to deal with the effects of HWC in the communities, then wildlife officials need to find a way to design a payment program that helps the actual victims to cope and increase their tolerance levels towards wildlife. However, monetary reimbursements for direct losses should not be the exclusive form of compensation. For instance, in the short term, compensation for food loss might be reimbursed with replacement food or seed packages. Conservation non-governmental organisations (NGOs) and other non-state actors can play a significant role in the reduction of HWC by providing assistance for the development of compensation schemes.

Compensation programmes might make it easier for disadvantaged individuals and households to be able to cope. There are some factors that might contribute to the low likelihood of compensation being awarded to disadvantaged groups such as, the economically disadvantaged might lack the financial means necessary for travel. Literacy can also be influential. Manral *et al* (2016) noted that, the procedure of getting compensation might be lengthy and forbidding for individuals that are poor and uneducated. This observation might apply to the situation at Kakum if a prospective compensation scheme is not made accessible and inclusive.

In order to ensure accessibility and inclusiveness, any prospective schemes could use the Livelihood Empowerment Against Poverty (LEAP) program as a blueprint. The LEAP program initiated in 2008 offered cash transfers to extremely poor individuals. These cash transfers are targeted specifically at homes that include orphans or children in precarious situations, as well as the elderly and persons with serious impairments. The reduction of poverty was one of the LEAP's primary goals. It was implemented

by the government of Ghana in conjunction with the World Bank and the Department of International Development of the United Kingdom. Its objective is to provide financial aid to extremely poor households in order to alleviate poverty (Handa *et al.* 2013).

To qualify for LEAP, applicants must be living in poverty and meet at least one of the following three demographic requirements: families with orphan or vulnerable children, aged poor, or those with serious disabilities (Foli 2015). In addition, the programme targets households that fall under the category of extremely poor and include at least one member who meets one of the following criteria: (a) is over the age of 65; (b) is currently coping with a severe disability; and (c) is responsible for the care of orphans or children in vulnerable situations (Handa *et al* 2013, Foli, 2015).

Each and every recipient of the LEAP program is eligible for free registration with the NHIS. Over ninety-five percent of the ailments that afflict the people of Ghana are included in the National Health Insurance Scheme's (NHIS) benefit package (Okoroh *et al.* 2018). It includes coverage for outpatient treatments as well as the majority of inpatient services (specialist care, the majority of surgical procedures, cervical and breast cancer, physiotherapy, hospital ward accomodation, etc.), as well as services for dental health, eye health, etc. All pregnant women are eligible for free maternity care, and postnatal care is provided for up to 90 days after delivery. In addition to that, it pays for caesarean sections, emergency medical care, and the full range of medications on the National Health Insurance Authority (NHIA 2012). The people who are eligible for the LEAP, however, are required to comply with certain requirements, like as keeping their children out of hazardous labour and sending them to school. Similarly, such provisions can persuade parents to exclude their children and wards from guarding.

The implementation of a compensation schemes by replicating the accessibility and inclusive nature of the LEAP program can be helpful. Moreover, the local government can play a significant role because

of the experience and lessons they might have gotten from the implementation of LEAP. Despite the number of challenges associated with compensation programmes in many African countries (Nyhus *et al*. 2003, Nyhus *et al.* 2005, Maheshwari *et al*. 2014, Gloriose, 2019), compensation still has relevance within the context of an overall plan to mitigate the effects of conflict (Anthony and Swemmer 2015). For the compensatory strategy to be effective, it ought to be influenced by "ground-level" perspectives and realities and access is ensured through meaningful participation. Given the pressing issue of declining levels of tolerance for conservation efforts and human-wildlife interactions in communities, there is an imperative to approach this matter swiftly. It is crucial to adopt a holistic perspective that incorporates gender and intersectional factors, into the analysis. This comprehensive approach not only strengthens our understanding of the problem but also facilitates the formulation of more effective and inclusive solutions for the future of conservation.

7.3. Livelihood alternatives

HWC in KCA is complex and resolving the issues necessitates a comprehensive approach to poverty and livelihood options. Significant investment should be invested in programmes aimed at providing alternative livelihoods for individuals near the park. While the main goal of such interventions is to mitigate danger to biodiversity, a significant secondary goal is to enhance the well-being of the targeted populations. This might mean assisting both men and women in obtaining alternative forms of income that are not linked to subsistence farming. It can also help to alleviate the pressures of migration. The implementation of ‘alternative livelihood’ programmes may mitigate risks to species in the park. For example, one way to decrease illegal park entry and bushmeat hunting, intake, and trade (illegal in the off-season) is to provide alternate nutrition and income-generating sources.

Some projects geared at reducing bush meat in West Africa have been successful. For example, LHBI (Lebialem Hunters’ Beekeeping Initiative) was introduced in Lebialem in Cameroon in 2007. The main

aim of LHBI was to research the feasibility of using beekeeping as an alternative to bushmeat hunting. The objectives for the initiative were (1) to train bushmeat hunters in beekeeping and provide them with technical support; (2) to establish a beekeeping association (3) to facilitate a community conservation education programme; and (4) to assess beekeeping as an alternative to bushmeat hunting. A positive example from the initiative is that some of the participants made enough income to stop bushmeat hunting. Also, the conservation education that the participants received in addition to the beekeeping training, helped to reduce the hunting of primates (CBD 2011).

Individuals and families who rely on a single source of income are more likely to suffer more losses that are exacerbated by the lack of assets or income sources. Support for alternative livelihoods thus benefits households by diversifying their sources of income and reducing their vulnerability to shocks, which may eventually result in an increase in tolerance for the wildlife in the park. HWC is linked to livelihood vulnerabilities. As a result, the need of addressing livelihood problems as part of any HWC management programme is crucial. The effectiveness of government backed alternative livelihood initiatives is important for mitigating the shocks associated with HWC occurrences on individual and family earnings.

Some developing countries have opted to experiment with this idea. A typical example is the Project Orange Elephant (POE) in Sri Lanka. POE is an innovative diversification project conceptualized by the Sri Lanka Wildlife Conservation Society to establish an economic buffer for farmers living in the rural countryside for which close encounters with elephants during their day-to-day activities are commonplace (Dharmarathne *et al.* 2020) . The project uses Bibile Sweet (*Citrus sinensis*) which bears fruit within 1.5–3 years. Each Bibile Sweet can produce ~300–600 fruits per season and has good market demand. By planting these trees, the goal is to reduce crop-raiding and also generate an additional

income for farmers. In 2015, Project Orange Elephant received the Most Innovative Development Project Award from the Global Development Network, based in Washington, DC, U.S.A.

Alternative livelihood projects may be self-contained or incorporated into a more extensive integrated conservation programme. However, the goal remains the same - to serve as a means of providing local residents with a means of subsistence that improves living standards and also protects biodiversity. Alternative livelihoods such as fish farming and grasscutter rearing and snail farming can help farmers to supplement their income and satisfy their financial obligations. To guarantee profitability and replicability, thorough engagement with farmers and community leaders is essential. The success of these alternative livelihoods anchors on funding trade-related infrastructure and political will.

7.4. Financial and technical assistance

Two distinct types of support are very important: financial and technical. While community members often emphasize the need for financial aid in order better protect their farms, talking to locals and officials and seeing first-hand the issues, I suggest that technical assistance should be scaled up. Different degrees of capacity development will be required.

For instance, beekeeping is one of the effective ways of preventing crop-raiding. When the honeybee senses that its colony is endangered, it becomes very hostile. When a bee stings an assailant, it emits pheromones that attract other bees to the assault site, where they engage in defense behaviours until the danger is eliminated (Wright *et al.* 2018, van de Water *et al.* 2020). Beehive fences fly open when elephants contact their wire lines, unleashing swarming bees that sting and chase the elephants away. According to King *et al.* (2011), elephants avoid trees that host beehives. In addition to fleeing from bee sounds, elephants have an alarm scream to alert family members to evacuate. In order to keep their clan members away from busy hives, elephant culture has developed a particular warning sound.

The premise is simple; the swarm of bees will sting the elephant as a protective mechanism, causing it to flee into the park. In 2011, 17 Turkana farms in northern Kenya found that 1,700 metres of beehive fence worked better than thorn bush barriers, stopping 13 of 14 elephant assaults. The farmers accruing 106 kg of honey crop only enhanced the deal. This strategy is one of the most environmentally friendly approaches to managing HWC that managers of KCA ought to scale up because the use of beehive fences as a natural deterrent assists locals, with pollination services and elephant-friendly honey (King *et al.* 2011).

Elephants might change their feeding tactics to combat the bee menace. Farmers must safeguard their hives against predators, and parasites in order to achieve the optimal level of honey production. There is also the significance of safety concerns when utilising beehives as a nonlethal deterrent because bees are notorious for their aggression and are also a threat to people (Woyke 1992, Ngama *et al.* 2016). A sting to an allergic individual and multiple stings to a non-allergic individual might cause toxic syndrome consequences and death (Pearce *et al.* 2001). Using beehives can assist both people and elephant conservation if they are properly managed. Nonetheless, as a biological method, the usage of beehives faces several obstacles (Karidozo and Osborn 2005, Hoare 2012); with pests and predators being among the most significant. Some insect species threaten honeybees and their honey, causing colonies to disappear or perish. Other pests and predators are also important threats to honeybees, including birds, ants, lizards, wasps, and termites (Bihonegn and Begna 2021)

The use of this strategy can enhance livelihoods by boosting the production of a variety of bee products such as honey. For example, the Kenya Wildlife Service created a 10-year Management Strategy for Elephants in 2012. The strategy includes an experiment to see if the use of beehive fences can reduce HWC in order to protect elephants. During the 3.5-year study, 80% of elephants visiting the experimental agricultural lands were kept out by beehive fences, and those that did were in smaller

groups than usual. Beehive barriers assisted farmers socially and monetarily by selling 228 kg of elephant-friendly honey. Due to the study's effectiveness, an additional 12 farms and 297 beehives were added to the study's total of 22. This shows the community's acceptance of beehive fences as a mitigating measure (King *et al* 2017).

In KCA, the Wildlife Division equipped some selected farmers with beekeeping boxes in some of the communities. However, the lack of beekeeping skills, knowledge and technical know-how means that most farmers could not improve beehive colonization. If that pilot program was successful, the park officials would have gained a better understanding of elephant reactions to beehive fences, fence breaching, and community cooperation may help design effective and efficient management strategies for this and other HWC hotspots in Ghana.

Also, some farmers make efforts in installing pepper fences that have rags engulfed in chili peppers mixed with engine oil. Elephants may be deterred from entering enclosed fields by using sisal string fences drenched in engine oil mixed with ground chilli (*Capsicum spp*.). Some farmers in the vicinity of KCA have been erecting barriers around their farms. However, some incidences of fences being smashed by elephants are reported by others. The central government through the Ministry of Environment, Science, Technology and Innovation, and their international partners as well as non-governmental organisations can assist in taking up the price of supplies. Chili fences are gaining popularity fast. I propose that promoting chilli fences as a good strategy across communities, as it may help safeguard livelihoods, boost rural farmers' food security, and contribute to wildlife conservation.

7.5. Community engagement and policies

The state's strong top-down approach to environmental policies confirms farmers' beliefs that conservation is undertaken by and for elites with little concern for locals. To avoid escalating open or

covert confrontation, wildlife officials should interact more frequently and broadly with the whole community, not just local elites. Numerous farmers expressed a wish to have their voices heard by formal institutions and to participate in decision-making processes. Hence, the park management must strengthen community cooperation, increase community voice, and integrate community viewpoints in management decisions.

Communities are essential to HWC management; without their active involvement, a significant portion of conservation efforts is undermined. Community involvement is necessary for the rule of law, intelligence collecting, reporting, monitoring, and evaluation (Decker *et al.* 2005, Oskarsson 2014, Cooney *et al.* 2018). Without community participation, it will be impossible to provide solutions to HWC. The more communities participate in decision-making processes and the creation of local ideas, the easier it is to build trust. For instance, Bajracharya *et al* (2005) assessed the efficacy of community-based techniques for biodiversity conservation in Annapurna Conservation Area (ACA) (Nepal) using a mix of ecological evaluations and social surveys conducted both inside and outside ACA. Inside the ACA, forest basal area and tree species variety were found to be substantially greater than in adjacent regions outside. The average density of cut tree stumps was much lower inside ACA, which corresponds to a drop in the usage of fuelwood. Since the start of community-based conservation, social surveys also suggest that the number of wild animals inside ACA has grown. Changing patterns of resource use and behaviour, increased community control over local resources, and increased conservation awareness due to environmental education have played a key role in strengthening local institutions like Conservation Area Management Committees (CAMC).

Coexistence with wildlife frequently comes at a cost, for example, increasing wildlife populations and range extension into communal and freehold agricultural areas have resulted in greater conflict between humans and wild animals. Such conflicts have occurred and will continue to exist in areas where humans

and animals coexist. This implies that although it will be impossible to eliminate all conflict, it must be handled as effectively and efficiently as possible. A National Policy on HWC should be formulated in Ghana with the goal of managing HWC in a manner that respects the rights and development requirements of local people while also promoting biodiversity conservation. It should be flexible and updated frequently to reflect changing conditions.

According to Woolaston *et al.* (2021), one of the reasons for the link between law and negative outcomes is that policymakers do not consider the values of stakeholders in legal drafting resulting in a lack of support for the law. These repercussions imply that the normative content of laws may not necessarily represent the viewpoints of people who might be directly impacted by them. Hence, the lack of 'buy-in' from important stakeholders due to poorly drafted legislation means such laws are bound to fail. Prospective HWC laws and regulations in Ghana have to continuously adapt to the many values of relevant stakeholders. The necessity for malleability is illustrated by studies that found a favourable relationship between legislation and HWC, especially those that praised flexibility in management via adaptive techniques. In Norway, for instance, geese-farmer conflicts were effectively handled by a strategy that provided stakeholders with continuing conversation with management, resulting in the modification and adaptation of techniques to local circumstances (Tuvendal *et al.* 2015, Eythórsson 2017). Also, adaptive co-management has had positive results in the seal-fisheries dispute in Scotland (Butler *et al.* 2015).

The HWC situation in KCA demands an integrated, adaptable, and comprehensive strategy to manage the conflict in a way that would satisfy the country's national and international responsibilities to biodiversity protection while also meeting people's rights and development requirements. Hopefully, any prospective policies in this regard will be fully implemented, and properly funded, and not side-

stepped like technical reports have in the past. For example, the strategies in the FAO human elephant conflict technical report drafted in 2008 have not been implemented (FAO 2008). The report expatiates how to use low technology and utilise cheap, readily available materials to reduce crop losses. It outlines steps for community involvement and enumerates procedures for monitoring and evaluation of the various HWC management measures to determine their effectiveness. The technical report concludes that land use planning is the best option for reducing human-elephant conflict and to minimize the underlying root problems it will be necessary to institute a system of land use change in areas affected by crop-raiding. However, these key recommendations and other management solutions have been side stepped. Consequently, the absence of an appropriate land use planning in fringe communities means that the problem still persists in the communities.

Ensuring that decisions are made quickly and efficiently based on the best available information should be a key component of any prospective HWC Policy in Ghana. This can be best accomplished by striking a balance between conservation goals and the requirements of people who live in close proximity to the park. Ultimately, increasing local community tolerance for wildlife is a critical objective that ought to be prioritized.

7.6. Crop substitution

Crop substitution programmes can be used to find new crops that will replace the crops that the communities are already used to cultivating. Farmers should be provided with resources and technical knowledge help in order to cultivate these crops. Thus, crops that provide a decent income and that can survive in the communities where they are planted. In order to boost the profitability of traditional agriculture in the communities, a replacement project should also incorporate high-value, non-traditional crops into the mix. While the objective is to encourage farmers to cultivate crops other than

the ones they are currently growing, the requisite infrastructure, such as a ready market, should be in place to make this possible.

Crop substitution as a strategy to manage HWC has been experimented with in some African countries and proved to be viable. For example, Matsika *et al*. (2020) assessed the efficacy of utilising alternative crops such as groundnut (*Arachis hypogaea L*.), cowpea (*Vigna unguiculata L. Walp*), safflower (*Carthamus tinctorius L*.), and chilli pepper (*Capsicum frutescens*) to prevent elephant crop-raiding. In the study, the proportion of damaged plants varied greatly, with chilli showing the least damage and maize suffered the most damage. The introduction of chilli regularly discouraged elephants from causing agricultural damage. The study concludes that mixed-cropping minimises the frequency of elephant incursions, raises farmer earnings, and enhances food security. Also, a field experiment conducted by Gross *et al*. (2016), the appeal of prospective substitute crops (ginger, onion, garlic, and lemon grass) was assessed in comparison to a control plot of maize. Six weeks before the maize was to be harvested, elephants visited the fields and destroyed the maize. The test crops, on the other hand, suffered relatively little damage.

7.7. Conclusion

The significance of gender in analyzing both the direct and indirect costs of HWC is argued in this research. HWC is a significant issue in KCA, resulting in poor physical well-being, food insecurity, increased workloads, economic difficulties, and increased unlawful acts such as poaching. Also, the research highlights some of the social consequences of HWC, such as bad relationships between park officials and locals as well as the hidden costs—and psychological effects. These indirect effects have to be prioritized if HWC is to be dealt with in its entirety. In recognition of the fact that gender issues transcend other social groupings, I have also highlighted the critical need to include the concept of intersectionality in examining how HWC impacts communities. My interactions with people indicate

that HWC is connected to a broader set of issues related to social and economic circumstances. Thus, multiple stressors combine to exacerbate HWC-related risks and vulnerabilities.

In KCA, I discovered no HWC-related deaths. However, crop-raiding mainly by elephants is negatively impacting the livelihood of households around the park. I surmise that the loss of life by elephants may result in disaster. Thus, raids on farms may be somewhat tolerated, but the loss of human life would raise the dispute to a new level. Even a single killing may escalate animosity against animals and conservation initiatives, leading to retaliatory murders, and undercutting conservation's fundamental goal. Hence, prospective interventions by park officials should be geared towards biodiversity conservation as well as lives and livelihood protection in the long term because people's safety is crucial in influencing tolerance for animals, which reduces the possibility of retaliatory killings. The current HWC management initiatives are imbalanced, overly focusing on deterrent strategies rather than innovative remedies to curb the underlying issues. Providing a lasting solution to HWC hinges on the ability to adapt and explore novel instruments and methods, and an awareness of societal values and norms.

Environmental variables have distinct impacts on men and women, owing to their distinct roles and values in diverse cultures. Hence, a gendered perspective is critical for comprehending how environmental effects vary by gender. Thus, addressing the gender-environment nexus is critical for progressing toward a more equitable and sustainable form of development. Implementing a mix of short-term mitigating measures with long-term preventative initiatives is the most logical way to resolve HWC in KCA. To guarantee this, conservation policies and collaborative natural resource management schemes should strive to be inclusive, egalitarian, and gender-sensitive.

In as much as it is prudent that the gendered effects of HWC are recognized and addressed, it is critical to realise that addressing gender disparities is not just a question of correcting a wrong but also a critical

chance to use previously underutilised (and underrecognized) knowledge for adapting to the impacts of HWC. Finally, since women and men experience HWC in fundamentally different ways, HWC strategies must be gender-sensitive. Doing so may aid in the development of more socially just and perhaps more successful conflict HWC interventions, and if the fundamental assumption is that the merits of conservation should exceed the demerits to communities, then risks to personal safety and livelihoods must be addressed in their entirety (including gendered impacts).

The body of evidence demonstrating the critical role of comprehensive and gender-equitable stakeholder involvement in accomplishing conservation goals, and promoting human well-being continues to increase (Stokes *et al.* 2006, Young *et al.* 2013, Sawchuk *et al.* 2015). The worldwide conservation movement has not been rapid in embracing genuine gender-responsive strategies in policies. While most environmental organizations have generally recognized gender equality as a critical component to integrate into policies, implementation of gender policies and practices has lagged. This is partly because practitioners often have limited knowledge to comprehend how gender issues may aid or impede conservation goals. This research contributes to the body of knowledge on the subject by showing how gender and sociocultural norms reinforce social and economic disparities between men and women. It also contributes to the feminist political ecology literature in many ways by demonstrating the intricate links between HWC and its impact on men and women.

There is growing awareness that prudent management of the environment anchors on a nuanced understanding of gendered risks and vulnerabilities. Studies from around the world show that addressing gender inequalities is important as part of biodiversity conservation and efforts in transitioning to an inclusive economy - particularly in the aftermath of the pandemic (UN 2020, Ramvilas *et al.* 2021, Gibbons *et al*. 2022). The COVID-19 pandemic showed how global shocks and disasters may aggravate

existing gender disparities. Gender disparities have widened as the COVID-19 pandemic has harmed livelihoods and people's general well-being (Malik and Naeem 2020, Agarwal 2021, Kulkarni *et al.* 2022). The recovery process is a critical opportunity for nations to transition to a more sustainable and gender-equal path of development. Achieving this goal requires going beyond economic disparities and delving deeply into the disproportionate impacts of systemic problems – including gendered environmental disparities.

HWC will most certainly continue in the foreseeable future, given the present rate of human population growth, the rising demand for natural resources, and the increasing need for land for agricultural uses. This is particularly true in Africa, where subsistence farming will continue to play a critical role in feeding the continent's increasing population. Consequently, in the near future, HWC policies, programmes, and actions that use participatory approaches to successfully minimize threats to human safety and animal well-being will be in high demand. Hence, the complexity of HWC necessitates a conservation toolkit that provides both breadth and depth of information for developing the ability to comprehend human-wildlife interactions, including gender-sensitive interventions.

The absence of open confrontation in KCA, I feel, is not indicative of appeased relations. Thus, despite the absence of visible physical conflict, dissatisfaction and animosity exist and the potential of it evolving into something more sinister in the near future is inevitable. This notwithstanding, observed from a positive prism, I surmise that these hostilities are an inevitable part of the process of sharing perspectives and provides an opportunity to address current tensions by clarifying differences, working through misconceptions, and resolving existing misunderstandings which could potentially result in 'scientifically informed and socially legitimate environmental policy' (Peterson *et al*. 2005, p. 765). I noted that the majority of KCA inhabitants are supportive of protecting the park. Local environmental ethics are based on utilitarian and naturalistic considerations, and because local environmental ethics

place a premium on sustainable resource management, stakeholders might find common ground and interests if they engage locals in a meaningful dialogue.

Bibliography

Abrams, D. and Niaura, R. 1987. Social learning theory of alcohol use and abuse. In *Psychological theories of drinking and alcoholism.* Guilford Press: 131-178. Website [online] https://nyuscholars.nyu.edu/en/publications/social-learning-theory-of-alcohol-use-and-abuse Accessed 20 May, 2020.

Acquah, E., Nsor, C. A. Arthur, E. K. and Boadi, S. 2017. The socio-cultural impact of ecotourism on park-adjacent communities in Ghana. *African Journal of Hospitality, Tourism and Leisure* 6(2): 1-14.

Addo-Boadu, A. M. 2010. *Human-wildlife conflict management around Kakum Conservation Area, Ghana.* Master of Science thesis, Central European University, Budapest.

Adeola, A. J. Ibrahim, A. O. Adeola, A. N. Alaye, S. A. and Akande, O. A. 2018. Primates associated with crop raiding around borgu sector of Kainji Lake National Park, Nigeria. *World News of Natural Sciences.* 18(2): 223–231.

Adinkrah M. 2012. Better dead than dishonoured: masculinity and male suicidal behavior in contemporary Ghana. *Social Science and Medicine* 74: 81 – 474.

Adjei-Nsiah, S. and Sakyi-Dawson, O. 2012. Promoting cassava as an industrial crop in Ghana: Effects on soil fertility and farming system sustainability. *Applied and Environmental Soil*

Science. DOI:10.1155/2012/940954

Agarwal, B. 1997. Bargaining and gender relations: Within and beyond the household. *Feminist Economics* 3(1): 1-51.

Agarwal, B. 2000. Conceptualising environmental collective action: why gender matters. *Cambridge journal of economics*, *24*(3): 283-310.

Agarwal, B. 2009. Gender and forest conservation: The impact of women's participation in community forest governance. *Ecological Economics* 68(11): 2785-2799.

Agarwal, B. 2021. Livelihoods in COVID times: Gendered perils and new pathways in India. *World Development, 139*. https://doi.org/10.1016/j.worlddev.2020.105312.

Aguilar, L., Montserrat, B. and Paula, Z. 2004. *Gender Makes the Difference. Protected Areas*. Fact Sheet. IUCN. USAID Website [online] https://rmportal.net/library/content/abcg-documents/gender-makes-the-difference-protected-areas-fact-sheet Accessed 4 May, 2019.

Aguilar, L., 2014. Framework for conducting gender responsive analysis. *Washington DC: IUCN Gender Office*. Website [online] https://genderandenvironment.org/framework-for-conducting-gender-responsive-analysis/ Accessed 23 January, 2021.

Akyeampong, E. 1999. 'Drink, Power, and Cultural Change: A Social History of Alcohol in Ghana, c. 1800 to Recent Times'. Website [online]

https://link.gale.com/apps/doc/A54469167/AONE?u=anon~8067fbff&sid=googleScholar&xid=bb491ec5 Accessed 10 September 2021.

Akyeampong, O. A. 2011. Pro-poor tourism: residents' expectations, experiences and perceptions in the Kakum National Park Area of Ghana. *Journal of Sustainable Tourism* 19(2): 197-213.

Alaimo, S. 2009. Insurgent vulnerability and the carbon footprint of gender. Website [online] https://rc.library.uta.edu/uta-ir/bitstream/handle/10106/26232/44306-87698-1- PB.pdf?sequence=1 Accessed 15 January, 2021.

Anderson, D. 2012. Courting is like trading horses, you have to keep your eyes open: Gender-Related proverbs in a peasant society in Northern Sweden. *Journal of Northern Studies* 6(2): 9–36

Anjum, Tasneem. 2020. “Ecofeminism: Exploitation of Women and Nature.” *International Journal of English Literature and Social Sciences* 5 (4): 846-8.

Anthony, B. P. 2006. A View from the Other Side of the Fence: Tsonga Communities and the Kruger National Park, South Africa. Unpublished doctoral dissertation, Central European University, Budapest, Hungary

Anthony B. 2007. The dual nature of parks: attitudes of neighboring communities towards Kruger National Park, South Africa. *Environmental Conservation* 34: 236-245.

Anthony, B. P. 2021. Paying for the Past: The Importance of Fulfilling Promises as a Key Component to Resolving Human-Wildlife Conflict. *Sustainability* 13(13): 7407

Anthony, B. P. and Swemmer, L. 2015. Co-defining program success: Identifying objectives and indicators towards adaptively managing a livestock damage compensation scheme at Kruger National Park, South Africa. *Journal for Nature Conservation* 26: 65-77.

Anthony, B. P., Scott, P. and Antypas, A. 2010. Sitting on the fence? Policies and practices in managing human-wildlife conflict in Limpopo Province, South Africa. *Conservation and Society* 8(3): 225-240

Antwi, S. K., and Hamza, K. 2015. Qualitative and quantitative research paradigms in Business research: A philosophical reflection. *European Journal of Business and Management* 7(3): 217-225.

Appiah-Opoku, S. 2004. Rethinking ecotourism: The case of Kakum National Park in Ghana. *African Geographical Review* 23(1): 49-63

Appiah-Opoku, S. 2011. Using protected areas as a tool for biodiversity conservation and ecotourism: A case study of Kakum National Park in Ghana. *Society and Natural Resources* 24(5): 500-510.

Arora-Jonsson, S. 2011. Virtue and vulnerability: Discourses on women, gender and climate change. *Global environmental change, 21*(2): 744-751.

Asaba, R. B., Fagan, H., Kabonesa, C. and Mugumya, F. 2013. Beyond distance and time:

gender and the burden of water collection in rural Uganda. *WH2O: Journal of Gender and Water*, *2*(1): 31-38.

Asenso-Okyere, W. K. and Dzator, J. A. 1997. Household cost of seeking malaria care. A retrospective study of two districts in Ghana. *Social Science & Medicine 45*(5): 659-667.

Asiamah M. T., Dzadze P. and Gyasi B. 2014. The effect of malaria on staple food crop production in the Ejisu-Juaben Municipality of the Ashanti Region of Ghana. *Journal of Agriculture and Extension and Rural Development*. 6: 87–93.

Awumbila, M. 2006. Gender equality and poverty in Ghana: implications for poverty reduction strategies. *GeoJournal*, *67*(2): 49-161.

Ayivor, J. S., Gordon, C. and Ntiamoa-Baidu, Y. 2013. Protected area management and livelihood conflicts in Ghana: a case study of Digya National Park. *Parks* 19(1): 37-50.

Bacchi, C. and Eveline, J. 2009. Gender Mainstreaming or Diversity Mainstreaming? The Politics of 'Doing'. *Nordic Journal of Feminist and Gender Research* 17(1): 2-17.

Bajracharya, S. B., Furley, P. A. and Newton, A. C. 2005. Effectiveness of community involvement in delivering conservation benefits to the Annapurna Conservation Area, Nepal. *Environmental Conservation* 32(3): 239-247

Bakker, K. J. 2003. A political ecology of water privatization. *Studies in Political Economy* 70(1): 35-

58.

Banana, A., M. Bukenya, E., Arinaitwe, and B. Birabwa. 2012. *Gender, Tenure and Community Forests in Uganda*. Working Paper No. 87. Bogor, Indonesia: CIFOR. Website [online] https://www.cifor.org/publications/pdf_files/WPapers/WP87CIFOR.pdf Accessed 20 June, 2021.

Barnes, R. F., Hema, E. M., Nandjui, A., Manford, M., Dubiure, U. F., Danquah, E. K. and Boafo, Y. 2005. Risk of crop raiding by elephants around the Kakum Conservation Area, Ghana. *Pachyderm* (39): 19-25.

Barua, M., Bhagwat, S. A. and Jadhav, S. 2013. The hidden dimensions of human–wildlife conflict: health impacts, opportunity and transaction costs. *Biological Conservation* 157: 309-316.

Bavington, D., Grzetic, B. and Neis, B. 2004. The feminist political ecology of fishing down: reflections from Newfoundland and Labrador. *Studies in Political Economy, 73*(1): 159-182.

Beardon, H. 2008. Building hope from chaos: culture, politics and the protection of the Colombian Pacific mangroves. World Wildlife Fund, Godalming, UK. Website [online] http://assets.panda.org/downloads/reflections_on_change_colombia__ing_web_final.pdf Accessed 15 January, 2020.

Belkhir, J. A. and Barnett, B. M. 2001. Race, gender and class intersectionality. *Race, Gender & Class* 8: 157-174.

Bellotti, A. C., Braun, A. R., Arias, B., Castillo, J. A. and Guerrero, J. M. 1994. Origin and management of neotropical cassava arthropod pest. *African Crop Science Journal*

2(4): 407-417.

Bennett, N. J., Finkbeiner, E. M., Ban, N. C., Belhabib, D., Jupiter, S. D., Kittinger, J. N., Mangubhai, S., Scholtens, J., Gill, D. and Christie, P. 2020. The COVID-19 pandemic, small-scale fisheries and coastal fishing communities. *Coastal management*, *48*(4): 336-347.

Berger, R. 2015. Now I see it, now I don't: Researcher's position and reflexivity in qualitative research. *Qualitative Research* 15(2): 219 – 234.

Bihonegn, A. and Begna, D. 2021. Beekeeping Production System, Challenges, and Opportunities in Selected Districts of South Wollo Zone, Amhara, Ethiopia. *Advances in Agriculture*. https://doi.org/10.1155/2021/2278396. Accessed 15 January, 2022.

Binlinla, J. K., Voinov, A. and Oduro, W. 2014. Analysis of human activities in and around protected areas (PAs): Case of Kakum conservation area in Ghana. *International Journal of Biodiversity and Conservation* 6(7): 54-554.

Biehl, J. 1991. *Rethinking eco-feminist politics*. Boston, Massachusetts: South End Press. Website [online] https://books.google.com/books?hl=en&lr=&id=R0DVqv-TJ8QC&oi=fnd&pg=PP9&dq=Biehl,+J.+1991.+Rethinking+eco-feminist+politics.+Boston,+Massachusetts:+South+End+Press&ots=ewP5D5Keu0&sig=ztnuN7065Ki_fiS43BvX0D_aB2g Accessed 20 May, 2021.

Biermayr-Jenzano, P. 2003. *Maximizing Conservation in Protected Areas. Guidelines for*

Gender Consideration. Policy Brief. IUCN, Population Reference Bureau. Website [online] https://agris.fao.org/agris-search/search.do?recordID=GB2013200188 Accessed 5 May, 2020.

Bitanyi, S., Nesje, M., Kusiluka, L. J., Chenyambuga, S. W. and Kaltenborn, B. P. 2012. Awareness and perceptions of local people about wildlife hunting in western Serengeti communities. *Tropical Conservation Science*, *5*(2): 208-224.

Blaikie, P. and Brookfield, H. 1987. *Land degradation and society*. London: Routledge. Website [online] https://www.academia.edu/18686878/Land_Degradation_and_Society Accessed 12 May, 2020.

Boafo, Y., Dubiure, U. F., Danquah, E. K., Manford, M., Nandjui, A., Hema, E. M., Barnes, R. F. and Bailey, B. 2004. Long-term management of crop raiding by elephants around Kakum Conservation Area in southern Ghana. *Pachyderm* 37: 68-72.

Bohan, J. S. 1993. Regarding gender: Essentialism, constructionism, and feminist psychology. *Psychology of Women Quarterly* 17(1): 5-21.

Boone, C., Glick, P. and Sahn, D. E. 2011. Household water supply choice and time allocated to water collection: Evidence from Madagascar. *Journal of Development Studies*, *47*(12): 1826-1850.

Boyle, J. S. 1994. Styles of ethnography. *Critical Issues in Qualitative Research Methods* 2: 159-85.

Brannick, T. and Coghlan, D. 2007. In defense of being "native": The case for insider academic research. *Organizational Research Methods* 10(1): 59-74.

Brandth, B. 2002. Gender identity in European family farming: A literature review. *Sociologia ruralis*, 42(3): 181-200.

Braun, V. and Clarke, V. 2006. Using thematic analysis in psychology. *Qualitative Research in Psychology* 3(2): 77-101.

Brewer, N., Mitchell, P., and Weber, N. 2002. Gender role, organizational status, and conflict management styles. *International Journal of Conflict Management* 13(1): 78-94.

Brink, H. I. 1993. Validity and reliability in qualitative research. *Curationis* 16(2): 35-38.

Brundtland, G. H. 1987. *Report of the World Commission on environment and development: Our common future.* New York: United Nations.

Buckingham, S., 2004. Ecofeminism in the twenty-first century. *Geographical journal*, *170*(2): 146-154.

Bukie, J. O., Yager, G. O., and Tsavyange, G. A. 2018. "Wild animal raid on agricultural crops in Katsina-Ala local government area of Benue State, Nigeria. Website [online] https://www.researchgate.net/publication/325287267_Wild_Animal_Raid_on_Agricultural_Crops_in_Katsina-Ala_Local_Government_Area_of_Benue_State_Nigeria/link/5b04054faca2720ba0996850/download. Accessed 20 February, 2022.

Bulte, E. H. and Rondeau, D. 2005. Why compensating wildlife damages may be bad for conservation. *The Journal of Wildlife Management* 69(1): 14-19.

Bustelo, M. 2003. Evaluation of gender mainstreaming: Ideas from a meta-evaluation study. *Evaluation*, *9*(4): 383-403.

Butler, J. R. A., Young, J. C., McMyn, I. A. G., Leyshon, B., Graham, I. M., Walker, I., Baxter, J. M., Dodd, J. and Warburton, C. 2015. Evaluating adaptive co-management as conservation conflict resolution: learning from seals and salmon. *Journal of environmental management*, *160*: 212-225.

Burton, R. 2004. Seeing through the 'good farmer's' eyes: towards developing an Understanding of the social symbolic value of 'productivist' behaviour. *Sociologia Ruralis* 44 (2): 195–215

Castañeda, G., Chávez-Juárez, F. and Guerrero, O. A. 2018. How do governments determine policy priorities? Studying development strategies through spillover networks. *Journal of Economic Behavior & Organization*, *154*: 335-361.

Cole, S. 2017. Water worries: An intersectional feminist political ecology of tourism and water in Labuan Bajo, Indonesia. *Annals of Tourism Research*, *67*: 14-24.

Cooney, R., Roe, D., Dublin, H. and Booker, F. 2018. Wild Life, Wild Livelihoods: Involving communities on Sustainable Wildlife Management and Combating illegal Wildlife Trade. Website [online] https://wedocs.unep.org/bitstream/handle/20.500.11822/22864/WLWL_Report_web.pdf Accessed 25 January, 2021.

Compaore, A., Sirima, D., Hema, E. M., Doamba, B., Ajong, S. N., Di Vittorio, M. and Luiselli, L. 2020. Correlation between increased human-elephant conflict and poaching of elephants in Burkina Faso (West Africa). *European Journal of Wildlife*

Research 66(1): 1-9.

Convention on Biological Diversity. 2011. Livelihood alternatives for the unsustainable use of bushmeat. Report prepared for the CBD Bushmeat Liaison Group. Technical Series No. 60, Montreal. Website [online] https://www.cbd.int/doc/publications/cbd-ts-60-en.pdf 15 May, 2019.

Carney, J. 2004. Gender Conflict in Gambian Wetlands. In Peet R and Watts M (eds), *Liberation Ecologies: Environment, Development, Social Movements*, Second Edition. London: Routledge. Website [online] https://edisciplinas.usp.br/pluginfile.php/5203131/mod_resource/content/1/ESCOBAR%2C%20Arturo.%20Construction%20nature%20Elements%20for%20a%20post-structuralist%20political%20ecology.pdf 20 September, 2020.

Charmes, J. 2006. "A Review of Empirical Evidence on Time use in Africa from UN Sponsored Surveys". In *In Gender, Time use, and Poverty in sub-Saharan Africa. World Bank Working Paper No. 73, edited by* M. C. Blackden and Q. Wodon, 39–72. Washington DC: World Bank. Website [online] https://sarpn.org/documents/d0002049/Gender_Poverty_WorldBank_2006.pdf#page=53 Accessed 20 May, 2020.

Chavez, C. 2008. Conceptualizing from the inside: Advantages, complications, and demands on insider positionality. *The Qualitative Report* 13(3): 474-494.

Chelliah, K., Kannan, G., Kundu, S., Abilash, N., Madhusudan, A., Baskaran, N. and Sukumar, R. 2010. Testing the efficacy of a chilli–tobacco rope fence as a deterrent against

crop-raiding elephants. *Current Science* 99 (9): 1239-1243.

Chen, S., Yi, Z. F., Campos-Arceiz, A., Chen, M. Y., and Webb, E. L. 2013. Developing a spatially-explicit, sustainable and risk-based insurance scheme to mitigate human–wildlife conflict. *Biological Conservation* 168: 31-39.

Chen, C. H. 2011. Marketing religion online: The LDS Church's SEO efforts. *Journal of Media and Religion* 10 (4): 185-205.

Cho, S., Crenshaw, K. W. and McCall, L. 2013. Toward a field of intersectionality studies: theory, applications, and praxis. *Signs* 38(4): 785–810

Chowdhury, A. N., Mondal, R., Brahma, A. and Biswas, M. K. 2008. Eco-psychiatry and environmental conservation: study from Sundarban Delta, India. *Environmental Health Insights* 2: 61-76

Cobbinah, P. B. 2015. Local attitudes towards natural resources management in rural Ghana. *Management of Environmental Quality: An International Journal* 26(3): 423–436.

Coleman, E. A. and Mwangi, E. 2013. Women's participation in forest management: A cross-country analysis. *Global Environmental Change*, *23*(1): 193-205

Colucci, E. 2008. On the use of focus groups in cross-cultural research. In: Liamputtong, P (ed.) *Doing Cross-Cultural Research*: *Ethical and Methodological Perspectives*. Dordrecht: Springer: 233–252. DOI: 10.1007/978-1-4020-8567-3_15.

Crenshaw, K. 1990. Mapping the margins: Intersectionality, identity politics, and violence against women of color. *Stan. L. Rev* 43: 1241. https://heinonline.org/hol-cgi-bin/get_pdf.cgi?handle=hein.journals/stflr43&section=52&casa_token=mBm79Uw87pgAA

AAA:YznckBr5CBoDSOE8MTXsYrc0IfOrjuNPScxXPjWeYuupIl5exYaF2KQIBb5dT0H W6GSaBpo4yxg Accessed 20 May, 2020.

Christiano, K. 2000. Religion and family in modern American culture. In S. K. Houseknecht & J. G. Pankhurst (Eds.), *Family, religion, and social change in diverse societies* (pp. 43-78). New York: Oxford University Press.

Crușmac, O. 2015. Why gender mainstreaming is not enough? A critique to Sylvia Walby's the future of feminism. *Romanian Journal of Society and Politics* 10(1): 102-117.

Czech, B., Devers, P. K. and Krausman, P. R. 2001. The relationship of gender to species conservation attitudes. *Wildlife Society Bulletin*, 187-194.

Dagnew, T. and Wodajo, M. 2014. The socio-cultural functions of Kafa proverbs. *African Journal of History and Culture*, *6*(6): 94.

Dakwa, K. B., Monney, K. A. and Attuquayefio, D. 2016. Raid range selection by elephants around Kakum Conservation Area: Implications for the identification of suitable mitigating measures. *International Journal of Biodiversity and Conservation* 8(2): 21-31.

Danquah, E., Oppong , S. K. and Sam, M. K. 2006. Aspects of elephant crop raiding behaviour in the Kakum Conservation Area, Ghana. *Nature & Faune* 21(2): 15-19

Danquah, E. and Oppong, S. 2007. Aspects of elephant crop raiding behaviour in the Kakum Conservation Area, Ghana. Nature and Faune. Website [online] https://www.academia.edu/28257395/Aspects_of_Elephant_Crop_Raiding_Behav

iour_in_the_Kakum_Conservation_Area_Ghana?from=cover_page Accessed 22 January, 2019.

Davis, K. 2008. Intersectionality as buzzword: A sociology of science perspective on what makes a feminist theory successful. *Feminist theory* 9(1): 67-85.

Decker, D. J., Raik, D. A. B., Carpenter, L. H., Organ, J. F. and Schusler, T.M. 2005. Collaboration for community-based wildlife management. *Urban Ecosystems*, *8*(2): 227-236.

Demetriades, J. and Esplen, E. 2010. The gender dimensions of poverty and climate change adaptation. *Social dimensions of climate change: Equity and vulnerability in a warming world*: 133-144. Website [online] https://books.google.com/books?hl=en&lr=&id=07FAyBQVxCMC&oi=fnd&pg=PA133&dq=The+gender+dimensions+of+poverty+and+climate+change++++++++++++++++++adaptation.+Social+dimensions+of+climate+change:+Equity+and+vulnerability+in+a++++++++++++++++warming+world&ots=0ATXVAI0t1&sig=ETogoHfXcN9lrahqyalgo4IOoO0 Accessed 23 July, 2020.

DeMotts, R. and Hoon, P. 2012. Whose elephants? Conserving, compensating, and competing in Northern Botswana. *Society & Natural Resources*, 25(9): 837-851.

Denton, F. 2002. Climate change vulnerability, impacts, and adaptation: Why does gender matter? *Gender & Development*, 10(2): 10-20.

Denzin, N. K., and Lincoln Y. S. 2005. "The discipline and practice of qualitative research," In N. K. Denzin & Y. S. Lincoln (Eds.), *The Sage Handbook of Qualitative Research* (3rd

ed.), Sage, Thousand Oaks: 1–32. Website [online] http://www.daneshnamehicsa.ir/userfiles/files/1/9-%20The%20SAGE%20Handbook%20of%20Qualitative%20Research.pdf Accessed 22 October, 2020.

Dharmarathne, C., Fernando, C., Weerasinghe, C. and Corea, R. 2020. Project orange elephant is a conflict specific holistic approach to mitigating human-elephant conflict in Sri Lanka. *Communications Biology*, *3*(1): 1-3.

Dhingra, N., Jha, P., Sharma, V. P., Cohen, A. A., Jotkar, R. M., Rodriguez, P. S., Bassani, D. G., Suraweera, W., Laxminarayan, R., Peto, R. and Million Death Study Collabourators. 2010. Adult and child malaria mortality in India: a nationally representative Mortality survey. *The Lancet*, 376(9754): 1768-1774.

Diabah G and Amfo NAA. 2015. Caring supporters or daring usurpers? Representation of women in Akan proverbs. *Discourse & Society* 26(1): 3 – 28.

Diawuo, F. and Issifu, A. K. 2015. Exploring the African traditional belief systems in natural resource conservation and management in Ghana. *The Journal of Pan African Studies*, *8*(9): 115-131.

Dickman, A. J. 2010. Complexities of conflict: the importance of considering social factors for effectively resolving human–wildlife conflict. *Animal conservation* 13(5): 458-466.

Di Tella, R., J. Haisken-De New, and R. MacCulloch. 2010. Happiness adaptation to income and to status in an individual panel. *Journal of Economic Behavior & Organization* 76 (3): 834–852.

Distefano, E., 2003. Human–wildlife conflict worldwide: collection of case studies, analysis of management strategies and good practices. Food and Agricultural Organization of the United Nations (FAO), Sustainable Agriculture and Rural Development (SARD) paper. FAO. Website [online] https://www.fao.org/documents/card/en/c/e21b6162-b3ad-4661-8c52-710f95ebeaf7/ Accessed 10 June, 2020.

Dixon, A. B., Hailu, A., Semu, T. and Taffa, L. 2009. Local responses to marginalisation: human-wildlife conflict in Ethiopia's wetlands. *Geography* 94(1): 38-47

Dressel, S. Sandström, C. and Ericsson, G. 2015. A meta-analysis of studies on attitudes toward bears and wolves across Europe 1976–2012. *Conservation Biology, 29*(2): 565-574.

Dunham, K. M., Ghiurghi, A., Cumbi, R. and Urbano, F. 2010. Human–wildlife conflict in Mozambique: a national perspective, with emphasis on wildlife attacks on humans. *Oryx* 44(2): 185-193.

Dutta, P., Khan, S. A., Bhattarcharyya, D. R., Khan, A. M., Sharma, C. K. and Mahanta, J. 2010. Studies on the breeding habitats of the vector mosquito Anopheles baimai and its relationship to malaria incidence in Northeastern region of India. *EcoHealth* 7(4): 498-506.

Dwyer, S. C. and Buckle, J. L. 2009. The space between: On being an insider-outsider in qualitative research. *International journal of qualitative methods* 8(1): 54-63.

Dzah, E. D. E. 2011. Gender dynamics of climate change in Ghana: An intersectional

perspective. *Erasmus University*. https://thesis.eur.nl/pub/10591/Ellen_Dzah_WGD_2011.pdf Accessed 10 Dec, 2021.

Economic, Social Council (ECOSOC). 1997. Gender mainstreaming extract from. Enarson, Elaine (2006). Women and girls last?: Averting the second post-Katrina disaster. Website [online] http://understandingkatrina.ssrc.org/Enarson/ Accessed March 14, 2020.

Eggert, L. S., Eggert, J. A. and Woodruff, D. S. 2003. Estimating population sizes for elusive animals: the forest elephants of Kakum National Park, Ghana. *Molecular Ecology* 12(6): 1389-1402.

Elias, M. 2013. Practical Tips for Conducting Gender-responsive Data Collection. Bioversity International, Rome. Website [online] https://cgspace.cgiar.org/bitstream/handle/10568/105108/Practical_tips_for_gender_responsive_data_collection_1658.pdf?sequence=3&isAllowed=y Accessed 22 October, 2020.

Elmhirst, R. 2011. Introducing new feminist political ecologies. *Geoforum* 42(2): 129-132.

Elmhirst, R. 2015. Feminist political ecology. In *The Routledge handbook of gender and Development*: 82-90. Website [online] https://www.researchgate.net/publication/283026428_Feminist_political_ecology Accessed 21 October, 2020.

Fauna and Flora International (FFI). 2014. Opportunity Cost Analysis> Lesson Learned from REDD+ and Other Conservation Strategies

Cambridge, England. Website [online] https://assets.fauna- flora.org/wp-content/uploads/2017/11/FFI_2014_Opportunity-Cost-Analysis.pdf Accessed February 15, 2021.

Food and Agriculture Organisation of the United Nations. 2006. *Food Insecurity* Food and Agriculture Organisation; Rome, Italy. Website [online] https://www.fao.org/fileadmin/templates/faoitaly/documents/pdf/pdf_Food_Security_Cocept_Note.pdf Accessed 13 June, 2020.

Foli R. 2015. Transnational actors and policymaking in Ghana: the case of the Livelihood Empowerment against Poverty. Global Social Policy. https://doi.org/10.1177/1468018115615643.

FAO. 2008. Human-Wildlife Conflict Elephant Technical Manual. Website [online] https://www.fao.org/docrep/pdf/010/ai576e/ai576e00.pdf Accessed 10 May, 2019.

FAO. 2001. Field Level Handbook. Prepared by Vicki Wilde in collaboration with the Socio-economic and Gender Analysis (SEAGA) Programme, Gender and Development Service. Website [online] http://www.fao.org/docrep/012/ak214e/ ak214e00.pdf Accessed 20 May, 2020.

FAO. 2012. Passport to Mainstreaming Gender in Water Programmes: Key questions for interventions in the agricultural sector. Food and Agriculture Organisation of the United Nations (FAO) Rome. Website [online] http://genderandwater.org/en/gwa-products/capacity-building/passport-to-mainstreaming-gender-in-water-programmes/view. Accessed 20 May, 2020.

Fiagbomeh, R. 2012. Perceptions of the impacts of nature conservation and ecotourism management: a case study in the Kakum conservation area of Ghana. University of Gottingen, Germany. Website [online] https://www.academia.edu/download/53013795/FIAGBOMEH_2012.pdf Accessed 20 May, 2021

ENERGIA. 2012. Mainstreaming Gender in Energy Projects: A Practical Handbook. Website [online] https://www.energia.org/assets/2016/09/Mozambique-Manual-Mainstreaming-Gender-in-the-Energy-Sector-Training-Manual-final.pdf Accessed 20 January, 2021.

Eythórsson, E., Tombre, I. M. and Madsen, J. 2017. Goose management schemes to resolve Conflicts with agriculture: theory, practice and effects. *Ambio* 46(2): 231-240

Fellows, P. 2011a. *Processing for Prosperity*, 2nd ed.; FAO Diversification Booklet 5; FAO: Rome, Italy. Website [online] http://www.fao.org/3/a-i2468e.pdf Accessed 1 June, 2020.

Fellows, P. 2011b. *Value from Village Processing*, 2nd ed.; FAO Diversification Booklet 4; FAO: Rome, Italy. Website [online] http://www.fao.org/3/i2467e/i2467e00.pdf Accessed 1 June, 2020.

Forbes, L.C. and Sells, L., 1997. Reorganizing the woman/nature connection. *Organization & Environment*, *10*(1): 20-22.

Forthman Quick, D. L. Gustavson, C. R. and Rusiniak, K. W. 1985. Coyote control and taste aversion. *Appetite* 6(1985): 253-264

Fossey, E., Harvey, C., McDermott, F. and Davidson, L. 2002. Understanding and evaluating qualitative research. *Australian & New Zealand Journal of Psychiatry* 36(6): 717–732.

Frank, L. G. and Woodroffe, R. 2002. Managing predators and livestock on an East African rangeland. In *Lion Conservation Research. Workshop* 2: 12-17.

Gandiwa, E. Gandiwa, P. and Muboko, N. 2012. Living with wildlife and associated conflicts in a contested area within the Northern Gonarezhou National Park, Zimbabwe. *Journal of Sustainable Development in Africa* 14(6): 252-60.

Garine-Wichatitsky, M., Caron, A., Gomo, C., Foggin, C., Dutlow, K., Pfukenyi D., Lane, E. Le Bel, S., Hofmeyr, M., Hlokwe, T. and Michel, A. 2010. Bovine tuberculosis in buffaloes, Southern Africa. *Emerging infectious diseases* 16(5): 884.

Gay, D. A. Ellison, C. G. and Powers, D. A. 1996. In search of denominational subcultures: Religious affiliation and" pro-family" issues revisited. *Review of Religious Research*: 3-17. Website [online] https://www.jstor.org/stable/pdf/3512537.pdf?casa_token=Lg5CaYuoMmwAAAAA:2gBHOYiPtLzpF4LyMKhj6SUGRaSDsYkOVetyylbZ03n2f2kKg8wj1BjwKcWIy__k5jN8s2xrOm3Ra5nQCfnMVK-PC-4YeTyssnt3Wl3lAG2Frbg8upNR Accessed 20 May, 2020

Geertz, C. 1987. *Description: Toward an Interpretive Theory of Cultures*. New York: Basic Books. Website [online] https://philpapers.org/archive/GEETTD.pdf Accessed 20 September, 2019

GenderCC. 2009. Gender in to climate policy: Toolkit for climate experts and decision makers. Website [online] http://www.gendercc.net/fileadmin/inhalte/Dokumente/Tools/toolkit-gender-cc-web.pdf Accessed 20 May, 2020.

Gemeda, D. O. and Meles, S. K. 2018. Impacts of human-wildlife conflict in developing

countries. *Journal of Applied Sciences and Environmental Management* 22(8): 1233-1238.

Ghana Statistical Service. 2012. Ghana Statistical Service. 2012. *Population and Housing Census 2010*. Accra: Ghana. Website [online] https://www.statsghana.gov.gh/gssmain/storage/img/marqueeupdater/Census2010_Summary_report_of_final_results.pdf Accessed 20 May, 2021.

GhanaWeb. 2020. "Election 2020: 40 women elected to parliament." https://www.ghanaweb.com/GhanaHomePage/NewsArchive/Election-2020-40-women-elected-to-parliament-1128779 Accessed 24 June, 2022.

Gibbons, D. W., Sandbrook, C., Sutherland, W. J., Akter, R., Bradbury, R., Broad, S., Clements, A., Crick, H. Q., Elliott, J., Gyeltshen, N. and Heath, M. 2022. The relative importance of COVID-19 pandemic impacts on biodiversity conservation globally. *Conservation Biology*, *36*(1): 13781

Gloriose, U. 2019. Community perceptions of human-wildlife conflicts and the compensation scheme around Nyungwe National Park (Rwanda). *International Journal of Natural Resource Ecology and Management*, *4*(6): 188-197.

Gill, P., Stewart, K., Treasure, E. and Chadwick, B. 2008. Methods of data collection in qualitative research: interviews and focus groups. *British dental journal*, *204*(6): 291-295.

Gillman, L. 2007. Beyond the shadow: Re-scripting race in women's studies. *Meridians*, *7*(2):117-141.

Given, Lisa. 2008. *Thematic Coding and Analysis. The SAGE Encyclopedia of Qualitative Research Methods*. SAGE Publications. Website [online] https://publish.uwo.ca/~pakvis/Codes_and_Coding.pdf Accessed 20 September, 2019.

Gobah, F. F. and Liang, Z. 2011. The National Health Insurance Scheme in Ghana: prospects and challenges: a cross-sectional evidence. *Global Journal of Health Science*, *3*(2): 90.

Goetz, A. M. 1998. Women in politics & gender equity in policy: South Africa & Uganda. *Review of African Political Economy*, *25*(76): 241-262.

Gore, M. L. and Kahler, J. S. 2012. Gendered risk perceptions associated with human-wildlife conflict: implications for participatory conservation. *PLoS One* 7(3): e32901. Website [online] https://doi.org/10.1371/journal.pone.0032901 Accessed 20 September, 2019

Golafshani, N. 2003. Understanding reliability and validity in qualitative research. *The Qualitative Report* 8(4): 597-606.

Goodale, K., Parsons, G. J. and Sherren, K. 2015. The nature of the nuisance -damage or threat- determines how perceived monetary costs and cultural benefits influence famer tolerance of wildlife. *Diversity* 7(3): 318-341.

Gottlieb, A. 2006. Ethnographic Methods: Ethnography: Theory and Methods. *A handbook for social science field research: Essays & bibliographic sources on research design and methods*: 47-85. DOI: https://dx.doi.org/10.4135/9781412983211.n3

Government of Ghana. 2003. "National Poverty Reduction Programme 2003-2005." Accra:

National Development Planning Commission. https://www.fao.org/faolex/results/details/en/c/LEX-FAOC189994/ Accessed May 19, 2022

Government of Ghana. 2013. "Ministry of Gender, Children and Social Protection.". https://mogcsp.gov.gh/ Accessed 12 July, 2020.

Government of Ghana. 2016. "Local Governance Act, 2016 (Act 936)." https://lgs.gov.gh/wp- content/uploads/2019/08/Local-Governance-Act-2016_Act-936.pdf Accessed 20 June, 2020.

Govind, S. K. and Jayson, E. A. 2013. Efficiency of chilli powder (Capsicum sp.) to deter wild elephants from the crop fields in a tropical area. *Millenn Zool* 14: 21-24. Website [online] https://www.academia.edu/download/55436391/EFFICIENCY_OF_CHILLI_POWDER_TO_DETER_WILD_ELEPHANTS_FROM_THE_CROP_FIELDS_IN_A_TROPICAL_AREA.pdf Accessed 20 September, 2019.

Graham, K., Beckerman, A. P. and Thirgood, S. 2005. Human–predator–prey conflicts: ecological correlates, prey losses and patterns of management. *Biological conservation* 122(2): 159-171

Graham, M. D. Notter, B. Adams, W. M. Lee, P. C. and Ochieng, T. N. 2010. Patterns of crop-raiding by elephants, Loxodonta africana, in Laikipia, Kenya, and the management of human–elephant conflict. *Systematics and Biodiversity 8(4)*: 435-445.

Gross, E. M., McRobb, R. and Gross, J. 2016. Cultivating alternative crops reduces crop losses due to African elephants. *Journal of Pest Science, 89*(2): 497-506.

Gulati, S., Karanth, K. K., Le, N. A. and Noack, F. 2021. Human casualties are the dominant cost of human–wildlife conflict in India. *Proceedings of the National Academy of Sciences* 118(8). Website [online] https://www.pnas.org/doi/full/10.1073/pnas.1921338118 Accessed 20 January, 2022.

Gyan C, Abbey E and Baffoe M. 2020. Proverbs and patriarchy: analysis of linguistic prejudice and representation of women in traditional Akan communities of Ghana. *Social Sciences* 9(22):1 – 10.

Handa, S., Park, M., Darko, R.O., Osei-Akoto, I., Davis, B. and Daidone, S. 2013. Livelihood empowerment against poverty program impact evaluation. *Chapel Hill: Carolina Population Center, University of North Carolina*. Website [online] https://transfer.cpc.unc.edu/wp-content/uploads/2021/04/LEAP_Impact_Evaluation_March_2014.pdf Accessed 11 June, 2021.

Hankivsky, O., Grace, D., Hunting, G., Giesbrecht, M., Fridkin, A., Rudrum, S., Ferlatte, O. and Clark, N. 2014. An intersectionality-based policy analysis framework: critical reflections on a methodology for advancing equity. *International journal for equity in health*, *13*(1): 1-16.

Hall, M., Vasko, R., Buysse, D., Ombao, H., Chen, Q., Cashmere, J. D., Kupfer, D. and Thayer, J. F. 2004. Acute stress affects heart rate variability during sleep. *Psychosomatic medicine* 66(1): 56-62.

Haraway, D. 1988. Situated knowledges: The science question in feminism and the privilege

of partial perspective. *Feminist studies* 14(3): 575-599.

Harrison, Y. and Horne, J. A. 2000. The impact of sleep deprivation on decision making: a review. *Journal of experimental psychology: Applied 6*(3): 236-249

Hay, R. 1998. Sense of place in developmental context. *Journal of environmental Psychology* 18(1): 5-29.

Hayashi Jr, P., Abib, G. and Hoppen, N. 2019. Validity in Qualitative Research: A Processual Approach. *The Qualitative Report* 24(1): 98-112

Heather, B., L. Skillen, J. Young and T. Vladicka. 2005. Women's gendered identities and there structuring of rural Alberta. *Sociologia Ruralis* 45 (1–2): 86–97

Hellström, T. 2008. Transferability and naturalistic generalization: new generalizability concepts for social science or old wine in new bottles? *Quality & Quantity* 42(3): 321-337.

Hens, L. 2006. Indigenous knowledge and biodiversity conservation and management in Ghana. *Journal of Human Ecology*, *20*(1): 21-30.

Hiller, J. 2016. Epistemological foundations of objectivist and interpretivist research. Website [online] https://ecommons.udayton.edu/cgi/viewcontent.cgi?article=1053&context=books Accessed 20 September, 2019.

Hill, C. M. 2000. Conflict of interest between people and baboons : crop raiding in Uganda. *International Journal of Primatology* 21(2): 299-315.

Hill, C., Osborn, F. and Plumptre, A. J. 2002. Human-wildlife conflict: Identifying the problem and

possible solutions. Website [online] https://agris.fao.org/agris-search/search.do?recordID=XF2015040199 Accessed 10 June, 2019.

Hoare, R. 2012. Lessons from 15 years of human-elephant conflict mitigation: Management considerations involving biological, physical and governance issues in Africa. *Pachyderm* 51: 60-74. Website [online] https://pachydermjournal.org/index.php/pachyderm/article/download/291/248 Accessed 10 June, 2019.

Hong, Y. Y. 2017. Cultural attachment theory. *The international encyclopedia of intercultural Communication*: 1-10. DOI: 10.1002/9781118783665.ieicc0014

Hovorka, A. J. 2006. The No. 1 Ladies' Poultry Farm: A feminist political ecology of urban agriculture in Botswana. *Gender, Place & Culture*, *13*(3): 207-225.

Hughes, K., Hughes, J. and Cocq, F. P. L. 2020. Introduction: making the case for qualitative interviews. *International Journal of Social Research Methodology*, *23*(5): 541-545.

Huning, S. 2020. From feminist critique to gender mainstreaming—And back? The case of German urban planning. *Gender, Place & Culture* 27(7): 944-964.

Hunter, M. L., Hitchcock, R. K. and Wyckoff-Baird, B. 1990. Women and wildlife in Southern Africa. *Conservation Biology* 4(4): 448-451.

Ibrahim, M. K. David, J. M. and Shaibu, U. M. 2017. Malaria and agriculture: examining the cost implications and effect on productivity among farm households in Kogi state, Nigeria. *International Journal of Tropical Disease & Health* 23(3): 1-9.

Jackson, C., 1993. Doing what comes naturally? Women and environment in development. *World Development*, *21*(12): 1947-1963.

Jacoby, W. G. and Schneider, S. K. 2001. Variability in state policy priorities: An empirical analysis. *Journal of Politics 63*(2): 544-568.

Jadhav, S. and Barua, M. 2012. The Elephant Vanishes: Impact of human–elephant conflict on people's wellbeing. *Health & place* 18(6): 1356-1365.

James, R., Gibbs, B., Whitford, L., Leisher, C., Konia, R. and Butt, N. 2021. Conservation and natural resource management: where are all the women?. *Oryx*, *55*(6): 860-867.

Joekes, S., Heyzer , N., Oniang 'o, R. and Salles , V. 1994. Gender , Environment and Population. Development and Change, 25:137-165. http://dx.doi.org/10.1111/j.1467-7660.1994.tb00512.x

Jones, J. P., Andriamarovololona, M. M. and Hockley, N. 2008. The importance of taboos and social norms to conservation in Madagascar. *Conservation biology*, *22*(4): 976-986

Kaijser, A. and Kronsell, A. 2014. Climate change through the lens of intersectionality. *Environmental politics* 23(3): 417-433.

Kalmijn, M. 2003. Country differences in sex-role attitudes: Cultural and economic explanations. In *The cultural diversity of European Unity*: 311-337. DOI: https://doi.org/10.1163/9789047400035_019

Karidozo, M. and Osborn, F. V. 2005. Can bees deter elephants from raiding crops? An

experiment in the communal lands of Zimbabwe. *Pachyderm* 39:26-32. Website [online] https://www.researchgate.net/publication/284725449_Can_Bees_deter_elephants_from_raiding_crops_An_experiment_in_the_communal_lands_of_Zimbabwe_Pachyderm_39_26-32 Accessed 19 June, 2020.

Kenworthy, L. and Malami, M. 1999. Gender inequality in political representation: A worldwide comparative analysis. *Social Forces*, *78*(1): 235-268.

Khumalo, K. E. and Yung, L. A. 2015. Women, human-wildlife conflict, and CBNRM: hidden impacts and vulnerabilities in Kwandu Conservancy, Namibia. *Conservation and Society* 13(3): 232.

Kimega, G. M. 2003. Unresolved human/wildlife conflict in Kenya – the source of misery and poverty. In: Ecofiles. Lusaka. Zambia. Website [online] www.ogiek.org/indepth/human-wildlife-conflict.htm Accessed 1 December, 2020.

King, L. E., Lawrence, A., Douglas-Hamilton, I. and Vollrath, F. 2009. Beehive fence deters crop-raiding elephants. *African Journal of Ecology* 47(2): 131-137.

King, Lucy. 2019. 'Elephants & Bees'. *Elephants & Bees*. Website [online] http://elephantsandbees.com/. Accessed 15 January, 2022.

King, L.E., Douglas-Hamilton, I. and Vollrath, F. 2011. Beehive fences as effective deterrents for crop-raiding elephants: field trials in northern Kenya. *African Journal of Ecology* 49(4): 431-439.

King, L. E., Lala, F., Nzumu, H., Mwambingu, E. and Douglas-Hamilton, I. 2017. Beehive fences as a

multidimensional conflict-mitigation tool for farmers coexisting with elephants. *Conservation Biology*, *31*(4): 743-752

King, L. E., Douglas-Hamilton, I. and Vollrath, F. 2011. Beehive fences as effective deterrents for crop-raiding elephants: field trials in northern Kenya. *African Journal of Ecology*, *49*(4): 431-439.

Knight, J. 1999. Monkeys on the move: the natural symbolism of people-macaque conflict in Japan. *The Journal of Asian Studies* 58(3): 622-647.

Klingorova, K. and Havlíček, T. 2015. Religion and gender inequality: The status of women in the societies of world religions. *Moravian Geographical Reports* 23(2): 2-11.

Kulkarni, S., Bhat, S., Harshe, P. and Satpute, S., 2022. Locked out of livelihoods: impact of COVID-19 on single women farmers in Maharashtra, India. *Economia Politica*, *39*(1): 185-202.

Lamarque, F., Anderson, J., Fergusson, R., Lagrange, M., Osei-Owusu, Y. and Bakker, L. 2009. *Human-wildlife conflict in Africa: causes, consequences and management strategies* (No. 157). Food and Agriculture Organization of the United Nations (FAO).

Lambrecht, I., Schuster, M., Asare Samwini, S. and Pelleriaux, L. 2018. Changing gender roles in agriculture? Evidence from 20 years of data in Ghana. *Agricultural Economics*, *49*(6): 691-710.

Leach, M. 2000. New shapes to shift: War, parks and the hunting person in modern West Africa. *Journal of the Royal Anthropological Institute*, *6*(4): 577-595.

Leach, M. 2007. Earth mother myths and other ecofeminist fables: How a strategic notion rose and fell. *Development and change*, *38*(1): 67-85.

LeBlanc, P. R.2010. A practical approach to qualitative interviews. *The Qualitative Report*, *15*(6): 1621-1624.

LeCompte, M. D. 2000. Analyzing qualitative data. *Theory into practice* 39(3): 146-154.

Lessa, L. and Rocha, C. 2012. Food security and gender mainstreaming: Possibilities for social transformation in Brazil. International Social Work 55(3): 337–352.

Levers, M. 2013. Philosophical paradigms, grounded theory, and perspectives on emergence. *SAGE Open.* 1–6. Website [online] http://sgo.sagepub.com/content/3/4/2158244013517243 Accessed 15 June, 2020.

Lewis, A. L., Baird, T. D. and Sorice, M. G. 2016. Mobile Phone Use and Human–Wildlife Conflict in Northern Tanzania. *Environmental management* 58(1): 117-129.

Lewis, T. T, Cogburn, C. D, Williams, D. R. 2015. Self-reported experiences of discrimination and health: Scientific advances, ongoing controversies, and emerging issues. *Annual Review of Clinical Psychology.*11: 407–440. doi: 10.1146/annurevclinpsy-032814-112728.

Locke, C. 1999. Constructing a Gender Policy for Joint Forest Management in India. Development and Change, 30: 265-285. http://dx.doi.org/10.1111/1467-7660.00117

Lovenduski, J. 2008. State feminism and women's movements. *West European Politics*, *31*(1-2): 169-194.

Lute, M. L. and Gore, M. L. 2014. Stewardship as a path to cooperation? Exploring the role of identity in intergroup conflict among Michigan wolf stakeholders. *Human Dimensions of Wildlife*, *19*(3): 267-279.

Lykke, N. 2010. *Feminist studies. A guide to intersectional theory, methodology and writing*. New York: Routledge: https://doi.org/10.4324/9780203852774

Lynch, M. J. 2018. Acknowledging female victims of green crimes: environmental exposure of women to industrial pollutants. *Feminist criminology*, *13*(4): 404-427.

Macbeth, D. 2001. On "reflexivity" in qualitative research: Two readings, and a third. *Qualitative inquiry* 7(1): 35-68.

Mackenzie, C. A. and Ahabyona, P. 2012. Elephants in the garden: financial and social costs of crop raiding. *Ecological economics 75*: 72-82.

Madden, F. 2004. Creating coexistence between humans and wildlife: global perspectives on local efforts to address human–wildlife conflict. *Human dimensions of wildlife* 9(4): 247-257.

Maheshwari, A., Midha, N. and Cherukupalli, A., 2014. Participatory rural appraisal and Compensation intervention: challenges and protocols while managing large carnivore–human conflict. *Human Dimensions of Wildlife*, *19*(1): 62-71.

Manfredo, M. J., Teel, T. L. and Henry, K. L. 2009. Linking society and environment: A multilevel model of shifting wildlife value orientations in the western United

States. *Social Science Quarterly*, *90*(2): 407-427.

Manral, U., Sengupta, S., Hussain, S.A., Rana, S. and Badola, R., 2016. Human wildlife conflict in India: a review of economic implication of loss and preventive measures. *Indian Forester*, 142(10): 928-940.

Maisto, S. A. Carey, K. B. and Bradizza, C. M. 1999. Social learning theory. K. E. Leonard, H. T. Blane (Eds.), Psychological Theories of Drinking and Alcoholism (second ed.), Guilford Press: 106-163. Website [online] https://psycnet.apa.org/record/1999-02672-003 Accessed 23 June, 2019.

Maliao, R. J. and Polohan, B. B. 2008. Evaluating the impacts of mangrove rehabilitation in Cogtong Bay, Philippines. *Environmental management* 41(3): 414-424.

Malik, S. and Naeem, K., 2020. Impact of COVID-19 Pandemic on Women: Health, livelihoods & domestic violence. Website [online] https://www.think-asia.org/bitstream/handle/11540/11907/Covid19-_impact-on-women-_8-May-2020.pdf?sequence=1 Accessed 14 January, 2021.

Massei, G. and Cowan, D. 2014. Fertility control to mitigate human–wildlife conflicts: a review. *Wildlife Research* 41(1): 1-21.

Matsika, T. A., Adjetay, J. A., Obopile, M., Songhurst, A. C., McCulloch, G. and Stronza, A. 2020. Alternative crops as a mitigation measure for elephant crop raiding in the eastern Okavango Panhandle. *Pachyderm*, *61*: 140-152.

Mariki, S. B. 2016. Social impacts of protected areas on gender in West Kilimanjaro, Tanzania. *Open Journal of Social Sciences* 4(3): 220.

Mariki, S. B. Svarstad, H. and Benjaminsen, T. A. 2015. Elephants over the cliff: explaining wildlife killings in Tanzania. *Land Use Policy* 44: 19-30.

Mayberry, A. L., Hovorka, A. J. and Evans, K. E. 2017. Wellbeing impacts of human-elephant conflict in Khumaga, Botswana: exploring visible and hidden dimensions. *Conservation and Society* 15(3): 280-291.

McCall, L. 2005. The complexity of intersectionality. *Signs: Journal of women in culture and society*, *30*(3): 1771-1800.

McDonald, R. I., Fielding, K. S. and Louis, W. R. 2014. Conflicting social norms and community conservation compliance. *Journal for Nature Conservation*, *22*(3): 212-216.

McElroy, B., Wiseman, V., Matovu, F. and Mwengee, W. 2009. Malaria prevention in north-eastern Tanzania: patterns of expenditure and determinants of demand at the household level. *Malaria Journal* 8(1): 1-10

McKune, S. L. Borresen, E. C., Young, A. G., Ryley, T. D. A., Russo, S. L., Camara, A. D., Coleman, M. and Ryan, E. P. 2015. Climate change through a gendered lens: Examining livestock holder food security. *Global Food Security*, *6*: 1-8.

Meerlo, P., Sgoifo, A. and Suchecki, D. 2008. Restricted and disrupted sleep: effects on autonomic function, neuroendocrine stress systems and stress responsivity. *Sleep*

medicine reviews 12(3): 197-210.

Mellor, M., 1996. The politics of women and nature: Affinity, contingency or material relation? *Journal of Political Ideologies*, 1(2): 147-164.

Mercer, J. 2007. The challenges of insider research in educational institutions: Wielding a double-edged sword and resolving delicate dilemmas. *Oxford review of education* 33(1): 1-17.

Mertens, D. M. 2003. Mixed methods and the politics of human research: The transformative-emancipatory perspective. *Handbook of mixed methods in social and behavioral research*: 135-164. Website [online] https://www.researchgate.net/publication/303170860_Mixed_methods_and_the_politics_of_human_research_The_transformative_emancipatory_perspective Accessed 11 July, 2019.

Meyer, Birgit. 2012. Religious and Secular 'Spiritual' and 'Physical' in Ghana. In *What Matters? Ethnographies of Value in a Not So Secular Age*, ed. Courtney Bender and Ann Taves, 86–118. New York: Colombia University Press. Website [online] https://www.degruyter.com/document/doi/10.7312/bend15684-003/html Accessed 14 May 2020.

Meyers, D. T. 2010. Feminist perspectives on the self. Website [online] https://plato.stanford.edu/entries/feminism-self/ Accessed 26 May, 2020.

Migiro, S. O. and Magangi, B. A. 2011. Mixed methods: A review of literature and the future of the new research paradigm. *African Journal of Business Management* 5(10): 3757-3764.

Milward, K., Mukhopadhyay, M. and Wong, F. F. 2015. Gender mainstreaming critiques: signposts or dead ends?. *IDS Bulletin* 46(4): 75-81.

Miller, L. A., Johns, B. E. and Elias, D. J. 1998. Immunocontraception as a wildlife management tool: some perspectives. *Wildlife Society Bulletin* 26(2): 237-243.

Ministry of Environment, Tourism (MET). 2018. National Policy on Human Wildlife Conflict Management. MET, Windhoek. Website [online] https://www.meft.gov.na/files/files/HWC%20revise%20Policy.pdf Accessed 25 May, 2019.

Ministry of Gender, Children and Social Protection. 2015. "National Gender Policy." https://mogcsp.gov.gh/wp-content/uploads/2020/01/National-Gender-Policy.pdf Accessed 11 March, 2022.

Mishra, C., Allen, P., McCarthy, T. O. M., Madhusudan, M. D., Bayarjargal, A. and Prins, H. H. 2003. The role of incentive programs in conserving the snow leopard. *Conservation Biology* 17(6): 1512-1520.

Mochon, Daniel,Michael I. Norton, and Dan Ariely. 2008. Getting Off the Hedonic Treadmill, One Step at a Time: The Impact of Regular Religious Practice and Exercise on Well-Being. *Journal of Economic Psychology* 29 (5): 632–642.

Moeckli, J. and Braun, B. 2001. Gendered natures: feminism, politics and social nature: Theory, Practice, Politics. In *Social Nature: Theory, Practice, Politics*: 112-132. Website [online] https://www.researchgate.net/profile/Jane_Moeckli/publication/259904615_Gendered_

natures_feminism_politics_and_social_nature/links/588b99f645851567c93c9f7b/Gendered-natures-feminism-politics-and-social-nature.pdf Accessed 20 January, 2020.

Mohai, P. 1992. Men, women, and the environment: An examination of the gender gap in environmental concern and activism. *Society & Natural Resources*, *5*(1): 1-19.

Mollett, S. and Faria, C. 2013. Messing with gender in feminist political ecology. *Geoforum* 45: 116-125.

Monney, K. A., Dakwa, K. B. and Wiafe, E. D. 2010. Assessment of crop raiding situation by elephants (Loxodonta africana cyclotis) in farms around Kakum conservation area, Ghana. *International Journal of Biodiversity and Conservation* 2(9): 243-249.

Moon, M. D. 2019. Triangulation: A method to increase validity, reliability, and legitimation in clinical research. *Journal of emergency nursing*, *45*(1): 103-105.

Morgan, M. Y. 1987. The impact of religion on gender-role attitudes. Psychology of Women Quarterly 11(3): 301–310

Morse, J. M., Barrett, M., Mayan, M., Olson, K. and Spiers, J. 2002. Verification strategies for establishing reliability and validity in qualitative research. *International Journal of Qualitative Methods* 1(2): 13-22.

Murthy, K. R. 2016. *Toolkit on gender-sensitive participatory evaluation methods*. Website [online] http://www.isstindia.org/publications/Ranjani_toolkit.pdf Accessed 30 December, 2020.

Muruthi, P. 2005. Human wildlife conflict: lessons learned from AWF's African heartlands. *African Wildlife Federation*, Washington, DC, USA. AWF website [online]

https://www.awf.org/about/resources/human-wildlife-conflict-lessons-learned-awfs- african-heartlands Accessed 12 June, 2019.

Mussida, C. and Patimo, R. 2021. Women's family care responsibilities, employment and health: A tale of two countries. *Journal of family and economic issues, 42*(3): 489-507.

Mwangi, E. and Mai, Y. H. 2011. Introduction to the Special Issue on Forests and Gender. International Forestry Review 13(2): 119-122.

Nam, S. 2018. Toward everyday practices of gender: Implications of feminist political ecology for gender mainstreaming in Korean ODA. *Asian Journal of Women's Studies 24*(4): 463-488.

Nash, J. C., 2008. Re-thinking intersectionality. *Feminist review, 89*(1): 1-15.

Nelson, S., Chaudhury, M., Tranberg, H., Lambrou, Y., Tapio-Bistrom, M. L. and Kristjanson, P. M. 2013. Training guide. Gender and Climate Change Research in Agriculture and Food Security for Rural Development. FAO, Rome. https://www.fao.org/docrep/018/i3385e/i3385e.pdf Accessed 12 December, 2020.

Newmark, W. D., Manyanza, D. N., Gamassa, D. G. M. and Sariko, H. I. 1994. The conflict between wildlife and local people living adjacent to protected areas in Tanzania: human density as a predictor. *Conservation Biology* 8(1): 249-255.

Ngama, S. Korte, L. Bindelle, J. Vermeulen, C. and Poulsen, J. R. 2016. How bees deter elephants: beehive trials with forest elephants (Loxodonta africana cyclotis) in Gabon. *PLoS One*, *11*(5): p.e0155690. https://doi.org/10.1371/journal.pone.0155690

National Health Insurance Authority. National Health Insurance ACT (ACT 852). 2012. Website [online] http://asgmresearch.weebly.com/uploads/3/0/1/6/30160743/national-health- insurance-act-2012-act-852.pdf. Accessed 25 May, 2020.

Nightingale, A. J. 2011. Bounding difference: Intersectionality and the material production of gender, caste, class and environment in Nepal. *Geoforum* 42(2): 153-162.

Nightingale, A. J. 2003. A feminist in the forest: Situated knowledges and mixing methods in natural resource management. ACME: *An International E-Journal for Critical Geographers* 2: 77–90.

Nightingale, A. J. 2017. Power and politics in climate change adaptation efforts: Struggles over authority and recognition in the context of political instability. *Geoforum* (84): 11-20.

NPPC and WWF-Bhutan. 2016. Human Wildlife Conflict Strategy: Nine Gewogs of Bhutan, National Plant Protection Centre (NPPC), Thimphu, Bhutan and WWF Bhutan, Thimphu. Website [online]https://www.researchgate.net/publication/315383535_Human_Wildlife_Conflict_SAFE_Strategy_Nine_Gewogs_of_Bhutan Accessed 5 January, 2019.

Nyirenda, V. R., Nkhata, B. A., Tembo, O. and Siamundele, S. 2018. Elephant crop damage: subsistence farmers' social vulnerability, livelihood sustainability and elephant conservation. *Sustainability* 10:3572. DOI:10.3390/su10103572

Nugraha, R. T. and Sugardjito, J. 2009. Assessment and management options of human-tiger conflicts in Kerinci Seblat National Park, Sumatra, Indonesia. *Mammal Study* 34(3): 141-154.

Nyhus, P.J., Osofsky, S.A. and Ferraro, P. 2005. the challenges of compensation schemes. *People and wildlife, conflict or co-existence?* Website [online] https://www.pauljferraro.com/s/Nyhus-et-al.PDF Accessed 10 January, 2019.

Nyhus, P.J., Fisher, H., Osofsky, S. and Madden, F., 2003. Taking the bite out of wildlife damage: the challenges of wildlife compensation schemes. *Conservation Magazine*. https://digitalcommons.colby.edu/cgi/viewcontent.cgi?article=1015&context=faculty_scholarship Accessed 14 August, 2020

O'Connell-Rodwell, C. E., Rodwell, T., Rice, M. and Hart, L. A., 2000. Living with the modern conservation paradigm: can agricultural communities co-exist with elephants? A five-year case study in East Caprivi, Namibia. *Biological conservation* 93(3): 381-391.

OECD. 2020. *Survey on integrating gender in environmental policies - Reporting on key Findings*. Website [online] https://one.oecd.org/document/ENV/EPOC(2020)9/en/pdf. Accessed 13 January, 2021.

O'Gorman, K. and Macintosh, R. 2015. Research Methods for Business & Management: A Guide to Writing Your Dissertation. Oxford: Goodfellow Publishers Ltd. https://www.researchgate.net/profile/Robert-Macintosh/publication/281236281_Methods_Map_-_Research_Methods_2nd_Ed_-_August_2015/links/55dc3bf408aed6a199ac8447/Methods-Map-Research-Methods-2nd-Ed-August-2015.pdf Accessed 23 March, 2019.

Ogra, M. V. 2008. Human–wildlife conflict and gender in protected area borderlands: a case study of costs, perceptions, and vulnerabilities from Uttarakhand (Uttaranchal),

India. *Geoforum* 39(3): 1408-1422.

Ogra, M. and Badola, R. 2008. Compensating human–wildlife conflict in protected area communities: ground-level perspectives from Uttarakhand, India. *Human Ecology* 36(5): 717-729

Okoroh J, Essoun S, Seddoh A, Harris H, Weissman J. S., Dsane-Selby L. 2018. Evaluating the impact of the national health insurance scheme of Ghana on out of pocket expenditures: a systematic review. BMC Health Service Resources 18(1): 1–14

Olson, J. D., McAllister, C., Grinnell, L. D., Gehrke Walters, K. and Appunn, F. 2016. Applying constant comparative method with multiple investigators and inter-coder reliability. *The Qualitative Report* 21(1): 26-42.

O Nyumba, T., Wilson, K., Derrick, C. J. and Mukherjee, N. 2018. The use of focus group discussion methodology: Insights from two decades of application in conservation. *Methods in Ecology and Evolution* 9(1): 20-32.

Onwuegbuzie, A. J. and Johnson, R. B. 2006. The validity issue in mixed research. *Research in the Schools* 13(1): 48-63.

Onyinah, Opoku. 2002. *Akan Witchcraft and the Concept of Exorcism in the Church of Pentecost*. Doctoral Dissertation, University of Birmingham. Website [online] https://etheses.bham.ac.uk/id/eprint/1694/1/Onyinah02PhD.pdf Accessed 10 August, 2020

Oparaocha, S. and Dutta, S. 2011. Gender and energy for sustainable development. *Current Opinion in Environmental Sustainability* 3(4): 265-271.

Oppermann, M. 2000. Triangulation—a methodological discussion. *International Journal of*

Tourism Research, *2*(2): 141-145.

Oskarsson, S. 2014. Community engagement in wildlife conservation. Website [online] https://www.diva-portal.org/smash/get/diva2:737919/FULLTEXT01.pdf Accessed 25 January, 2021

Osborn FV, Hill CM. 2005. Techniques to reduce crop loss to elephants and primates in Africa: the human and technical dimension. In: R Woodroffe, S Thirgood, A Rabinowitz, editors. *People and wildlife: conflict or co-existence?* Cambridge: Cambridge University Press: 72– 85

Orzeł-Gryglewska, J. 2010. Consequences of sleep deprivation. *International journal of occupational medicine and environmental health*. 23 (2010): 95-114

Osei-Hwedie, B. Z. and Agomor, K. S. 2018. Gender in political parties: Ghana's 2016 general elections. *South African Journal of International Affairs*, *25*(3): 393- 411

Osei-Owusu, Yaw. 2018. Human-Wildlife Conflict: Elephants-Technical Manual. United Nations Website [online] https://wedocs.unep.org/handle/20.500.11822/26753 Accessed 20 August, 2021.

Packer, C. Ikanda, D. Kissui, B. Kushnir, H. and Laverdiere, M. 2007. The ecology of man-eating lions in Tanzania. Nature and Faune, 21(2): 10-15

Palaganas, E. C., Sanchez, M. C., Molintas, M. P. and Caricativo, R. D. 2017. Reflexivity in qualitative research: A journey of learning. *The Qualitative Report* 22(2): 426–438.

Parent, M. C, DeBlaere, C. Moradi B. 2013. Approaches to research on intersectionality: Perspectives on gender, LGBT, and racial/ethnic identities. *Sex Roles.* 68(11–12):

639–645. doi: 10.1007/s11199-013-0283-2.

Parker, G. E. and Osborn, F. V. 2006. Investigating the potential for chilli Capsicum spp. to reduce human-wildlife conflict in Zimbabwe. *Oryx* 40(3): 343-346.

Patterson, B. D., Kasiki, S. M., Selempo, E. and Kays, R. W. 2004. Livestock predation by lions (Panthera leo) and other carnivores on ranches neighboring Tsavo National Parks, Kenya. *Biological conservation* 119(4): 507-516.

Patouillard E, Griffin J, Bhatt S, Ghani A, Cibulskis R, 2017. Global investment targets for malaria control and elimination between 2016 and 2030. *BMJ Global Health* 2(2). Website [online] https://gh.bmj.com/content/2/2/e000176.abstract 15 April 2020

Patton, M. Q. 2002. Qualitative interviewing. *Qualitative research and evaluation methods* 3(1): 344-347.

Paxton, P. and Kunovich, S. 2003. Women's political representation: The importance of ideology. *Social forces*, *82*(1): 87-113.

Pearce, A. N. Huang, Z. Y. and Breed, M. D. 2001. Juvenile hormone and aggression in honey bees. *Journal of Insect Physiology* 47(11): 1243-1247.

Pérès, K. Matharan, F. Allard, M. Amieva, H. Baldi, I. Barberger-Gateau, P. Bergua, V. Bourdel-Marchasson, I. Delcourt, C. Foubert-Samier, A. and Fourrier-Réglat, A. 2012. Health and aging in elderly farmers: the AMI cohort. *BMC public health* 12(1): 1-9.

Peterson, M. N., Peterson, M. J. and Peterson, T.R., 2005. Conservation and the myth of

consensus. *Conservation biology* 19(3): 762-767.

Peterson, M. N., Birckhead, J. L., Leong, K., Peterson, M. J. and Peterson, T. R. 2010. Rearticulating the myth of human–wildlife conflict. *Conservation Letters* 3(2): 74-82.

Peterson, M. N. Peterson, M. J. and Peterson, T. R. 2005. Conservation and the myth of consensus. *Conservation biology* 19(3): 762-767.

Phan, L. T., Jou, S. C. and Lin, J. H. 2019. Gender inequality and adaptive capacity: The role of social capital on the impacts of climate change inVietnam. *Sustainability*, *11*(5): 1257.

Phoenix, A. and Pattynama, P. 2006. Intersectionality. *European Journal of Women's Studies*, *13*(3): 187-192.

Pilcher, J. J. and Huffcutt, A. I. 1996. Effects of sleep deprivation on performance: a meta-analysis. *Sleep* 19(4): 318-326.

Powell Jr, G. B. 2004. Political representation in comparative politics. *Annual Review of Political Science*, 15(7): 273-296.

Protected Planet. 2021. *Protected Planet*. Website [online] https://www.protectedplanet.net/. Accessed 19 June, 2021.

Rahman, M. S. 2013. Climate change, disaster and gender vulnerability: A study on two divisions of Bangladesh. *American Journal of Human Ecology*, *2*(2): 72-82.

Ram, A. K., Mondol, S., Subedi, N., Lamichhane, B. R., Baral, H. S., Natarajan, L., Amin, R. and

Pandav, B. 2021. Patterns and determinants of elephant attacks on humans in Nepal. *Ecology and evolution* 11(17): 11639-11650.

Ramvilas, G., Dhyani, S., Kumar, B., Sinha, N., Raghavan, R., Selvaraj, G., Divakar, N., Anoop, V.K., Shalu, K., Sinha, A. and Kulkarni, A., 2021. Insights on COVID-19 impacts, challenges and opportunities for India's biodiversity research: From complexity to building adaptations. *Biological conservation*. Website [online] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8798314/ Accessed 20 January, 2022.

Rangarajan, M., Desai, A., Sukumar, R., Easa, P. S., Menon, V., Vincent, S., Ganguly, S., Talukdar, B. K., Singh, B., Mudappa, D., Chowdhary, S., Prasad, A. N. 2010. Gajah: Securing the Future for Elephants in India. Ministry of Environment and Forests, Government of India, New Delhi. Website [online] https://epub.ub.uni-muenchen.de/56285/ Accessed 24 February, 2019.

Rao, N., Lawson, E. T., Raditloaneng, W. N. Solomon, D. and Angula, M. N. 2019. Gendered vulnerabilities to climate change: insights from the semi-arid regions of Africa and Asia. *Climate and Development*, *11*(1): 14-26.

Read, J. N. G. 2003. The sources of gender role attitudes among Christian and Muslim Arab-American women. *Sociology of religion* 64(2): 207-222.

Rigby, K., 1998. Women and nature revisited: ecofeminist reconfigurations of an old association. *Arena Journal* 12: 143-169.

Robbins, P. F., Chhangani, A. K., Rice, J., Trigosa, E. and Mohnot, S. M. 2007. Enforcement

authority and vegetation change at Kumbhalgarh wildlife sanctuary, Rajasthan, India. *Environmental management* 40(3): 365-378.

Rocheleau, D. Thomas-Slayter, B. and Wangari, E. 1996. *Feminist political ecology: Global issues and local experience*. Routledge. Website [online] https://www.academia.edu/download/52990315/The_Oxford_Handbook_of_Transnational_Feminist_movements.pdf#page=809 Accessed 15 May, 2019.

Sale, J. E., Lohfeld, L. H. and Brazil, K. 2002. Revisiting the quantitative-qualitative debate: Implications for mixed-methods research. *Quality and quantity* 36(1): 43-53.

Sandberg, J. 2005. How do we justify knowledge produced within interpretive approaches? *Organizational research methods* 8(1): 41-68.

Sarin, M. 1995. Regenerating India's forests: Reconciling gender equity with joint forest management. *IDS bulletin* 26(1): 83-91.

Sawchuk, J. H., Beaudreau, A. H., Tonnes, D. and Fluharty, D. 2015. Using stakeholder engagement to inform endangered species management and improve conservation. *Marine Policy*, *54*: 98-107. Website [online] https://doi.org/10.1016/j.marpol.2014.12.014 Accessed 15 March, 2020.

Seager, J. 2003. Pepperoni or broccoli? On the cutting wedge of feminist environmentalism. *Gender, Place and Culture: A Journal of Feminist Geography*, *10*(2): 167-174.

Seoraj-Pillai, N. 2016. *Human-wildlife conflict in subsistence and commercial farmers in north-eastern South Africa* (Doctoral dissertation). Website [online] https://core.ac.uk/download/pdf/188775261.pdf Accessed 30 December, 2020.

Sherkat, D. E. 2000. That they be keepers of the home: The effect of conservative religion on early and late transitions into housewifery. *Review of Religious Research* 41(3): 344-358.

Shields, S. A. 2008. Gender: An intersectionality perspective. *Sex Roles.* 59(5–6): 301–311. doi: 10.1007/s11199-008-9501-8.

Shiferaw, B., Prasanna, B.M., Hellin, J. and Bänziger, M. 2011. Crops that feed the world 6. Past successes and future challenges to the role played by maize in global food security. *Food security* 3(3): 307-327.

SIDA. 2016. *Gender and the Environment Brief. Gender Tool Box*. Website [online] https://www.sida.se/contentassets/0b57532e484543199b0485c0984d731a/gender_and_environment.pdf. Accessed 15 June, 2020.

Singleton, B. E. 2021. Go to the forest! Exploring the orderings of Swedish Nature-Based Integration. *Environment and Planning E: Nature and Space*, *4*(4): 1560-1582.

Silwal, T., Kolejka, J., Bhatta, B. P., Rayamajhi, S., Sharma, R. P. and Poudel, B. S. 2017. When, where and whom: Assessing wildlife attacks on people in Chitwan National Park, Nepal. Oryx 51(2): 370-377.

Siljander, M., Kuronen, T., Johansson, T., Munyao, M. N., and Pellikka, P. K. 2020. Primates on the farm–spatial patterns of human–wildlife conflict in forest-agricultural landscape mosaic in Taita Hills, Kenya. *Applied Geography* 117: 102185. https://doi.org/10.1016/j.apgeog.2020.102185

Sitati, N. W., Walpole, M. J. and Leader-Williams, N. 2005. Factors affecting susceptibility of farms to crop raiding by African elephants: using a predictive model to mitigate

conflict. *Journal of Applied Ecology* 42(6): 1175-1182.

Sitati, N. W. Walpole, M. W., Leader-Williams, N. and Stephenson, P. J. 2012. Human elephant conflict: Do elephants contribute to low mean grades in schools within elephant ranges?. *International Journal of Biodiversity and Conservation* 4(15): 614-620.

Slevitch, L. 2011. Qualitative and quantitative methodologies compared: Ontological and epistemological perspectives. *Journal of Quality Assurance in Hospitality & Tourism* 12(1): 73-81.

Smith, M. J., Abbey, A. and Scott, R. O. 1993. Reasons for drinking alcohol: Their relationship to psychosocial variables and alcohol consumption. *International Journal of the Addictions* 28(9): 881-908.

Smith, I. D. and Coombs, S. J. 2003. The Hawthorne Effect: is it a help or a hindrance in social science research? *Change: Transformations in Education* 6(1): 97-111

Smyth, A. and Holian, R. 2008. Credibility issues in research from within organisations. In P. Sikes & A. Potts (Eds.), Researching education from the inside. Investigations from within. Website [online] https://www.semanticscholar.org/paper/Credibility-issues-in-research-from-within-Smyth-Holian/2c8aab684ca184be2b0fc654ab7716e26eef3470 Accessed 10 January, 2020

Snowden J. The economic benefits of malaria eradication. Giving what we can; 2016. Website [online] https://www.givingwhatwecan.org/post/2016/01/the-economic-benefits- of-malaria-eradication/. Accessed 10 January, 2020

Stenseth, N. C., Leirs, H., Skonhoft, A., Davis, S. A., Pech, R. P., Andreassen, H. P., Singleton, G. R., Lima, M., Machang'u, R. S., Makundi, R. H. and Zhang, Z. 2003. Mice, rats, and people: the bio-economics of agricultural rodent pests. *Frontiers in Ecology and the Environment* 1(7): 367-375.

Stokes, K.E., Montgomery, W.I., Dick, J.T.A., Maggs, C.A. and McDonald, R.A., 2006. The importance of stakeholder engagement in invasive species management: a cross-jurisdictional perspective in Ireland. *Biodiversity & Conservation*, *15*(8): 2829-2852.

Subakanya, M., Tembo, G. and Richardson, R. 2018. Land Use Planning and Wildlife-Inflicted Crop Damage in Zambia. *Environments*. Website [online] https://www.mdpi.com/2076-3298/5/10/110/pdf Accessed 15 December 2020

Suhadi, J. 2019. "Proverbs in Chinua Achebe's Novel Things Fall Apart." KnE Social Sciences, 158-168. https://knepublishing.com/index.php/Kne-_Social/article/view/4841/9719.

Suna, Y. Mwangi, E. and Meinzen-Dick, R. 2011. Is gender an important factor influencing user groups' property rights and forestry governance? Empirical analysis from East Africa and Latin America. *International Forestry Review* 13(2): 205-219.

Sultana, F. 2010. Living in hazardous waterscapes: Gendered vulnerabilities and experiences of floods and disasters. *Environmental Hazards*, *9*(1): 43-53.

Sultana, F. 2014. Gendering climate change: Geographical insights. *The Professional Geographer* 66(3): 372-381.

Tiller, L. N. Humle, T. Amin, R. Deere, N. J. Lago, B. O. Leader-Williams, N. Sinoni, F. K. Sitati,

N. Walpole, M. and Smith, R. J. 2021. Changing seasonal, temporal and spatial crop-raiding trends over 15 years in a human-elephant conflict hotspot. *Biological Conservation*. https://doi.org/10.1016/j.biocon.2020.108941

Tjaronda, W. 2007. Namibia: conservancies suspend compensation schemes. *New Era. Windhoek, Namibia:* New Era Publication Corporation. Website [online] https://neweralive.na/posts/conservancies-suspendcompensation-schemes Accessed 22 June, 2020

Treves, A. and Karanth, K. U. 2003. Human-carnivore conflict and perspectives on carnivore management worldwide. *Conservation biology*, *17*(6): 1491-1499.

Triandis, H. C., Bontempo, R., Betancourt, H., Bond, M., Leung, K., Brenes, A., Georgas, J., Hui, C.H., Marin, G., Setiadi, B. and Sinha, J. B. 1986. The measurement of the etic aspects of individualism and collectivism across cultures. *Australian journal of Psychology*, *38*(3): 257-267.

Truelove, Y. 2011. (Re-) Conceptualizing water inequality in Delhi, India through a feminist political ecology framework. *Geoforum* 42(2): 143 - 152.

Tucker, K. L. and Buranapin, S. 2001. Nutrition and aging in developing countries. *The Journal of nutrition* 131(9): 2417-2423

Tuvendal, M. J. Elmberg, and F. Naturvetenskapliga. 2015. A handshake between markets and hierarchies: geese as an example of successful collaborative management of ecosystem services. *Sustainability* 7(12): 15937-15954

Tweheyo, M., Tumusiime, D. M., Turyahabwe, N., Asiimwe, A. and Orikiriza, L. 2012. Wildlife

damage and control methods around Lake Mburo National Park, Uganda. *International Journal of Pest Management* 58(1): 25-31.

UN Environment. 2016. *Global Gender and Environment Outlook 2016*, United Nations, New York. Website [online] https://dx.doi.org/10.18356/0b979453-en. Accessed 5 May 2020

UNDP (2004) Gender and energy for sustainable development: A toolkit and resource guide. United Nations Development Programme . New York. Website [online] *http://www.esmap.org/sites/esmap.org/files/Gender%20and%20Energy%20for%20Sustainable%20Development_A%20Toolkit%20and%20Resource%20Guide.pdf* Accessed 5 May, 2020

U.N., 2020. The impact of COVID-19 on women's and men's lives and livelihoods in Europe and Central Asia: Preliminary results from a Rapid Gender Assessment. Istanbul. Website [online] *https://data. unwomen. org/publications/impact-covid-19-womens-and-mens-lives-and-livelihoodseurope-and-central-asia*. Accessed 15 June, 2021

United States Agency for International Development (USAID). The Mexico REDD+ Program. Preparing Mexico to Reduce Emissions Caused by deforestation and forest Degradation. Website [online] https://www.nature.org/content/dam/tnc/nature/en/documents/LogrosFinales_PolicyBrief_ENG.pdf Accessed 15 June, 2021

United States Agency for International Development (USAID). 2001. Office of Women in Development, GenderReach Project. Gender Matters Quarterly, Issue 3. Website [online] https://pdf.usaid.gov/pdf_docs/PNACP513.pdf Accessed 10 December, 2019.

United Nations Development Programme in Ghana. 2020. "Multidimensional Poverty Index (MPI) Ghana." https://www.undp.org/gh/content/dam/ghana/docs/Reports/UNDP_GH_MPI_Report_2020.pdf . Accessed May 13, 2022

Van Vliet, N. Cornelis, D. Beck, H. Lindsey, P. Nasi, R. LeBel, S. Moreno, J. Fragoso, J. and Jori, F. 2016. Meat from the wild: extractive uses of wildlife and alternatives for sustainability. In *Current Trends in Wildlife Research*. Website [online] https://www.cifor.org/knowledge/publication/6120/ Accessed 28 May 2020

van de Water, A., King, L. E., Arkajak, R., Arkajak, J., van Doormaal, N., Ceccarelli, V., Sluiter, L., Doornwaard, S. M., Praet, V., Owen, D. and Matteson, K., 2020. Beehive fences as a sustainable local solution to human-elephant conflict in Thailand. *Conservation Science and Practice*. https://doi.org/10.1111/csp2.260.

Vasavada, S. 2005. Mainstreaming gender concerns in participatory irrigation management: The role of AKRSP (I) in South Gujarat. *Flowing Upstream: Empowering Women through Water Management Initiatives in India*. Website [online] http://genderandwater.org/en/gwa-products/knowledge-on-gender-and-water/case-studies/Ench37AKRSP2020Final.pdf/ Accessed 28 December, 2020

Vaz-Jones, L. 2018. Struggles over land, livelihood, and future possibilities: Reframing displacement through feminist political ecology. *Signs: Journal of Women in Culture and Society*, *43*(3): 711-735.

Veit, P. and Benson, C. 2004. When parks and people collide. Environmental Rights, Spring, 13-14. https://files.wri.org/d8/s3fs-public/pdf/vb_parks_people.pdf Accessed 16 May, 2023

Villamor, G. B., Desrianti, F., Akiefnawati, R., Amaruzaman, S. and van Noordwijk, M., 2014. Gender influences decisions to change land use practices in the tropical forest margins of Jambi, Indonesia. *Mitigation and Adaptation Strategies for Global Change*, *19*: 733-755.

Waal, M.D., 2006. Evaluating gender mainstreaming in development projects. *Development in Practice*, *16*(02): 209-214.

Walsh, K. 2003. Qualitative research: Advancing the science and practice of hospitality. *Cornell Hotel and Restaurant Administration Quarterly* 44(2): 66-74.

Wells, J. L. and Dumbrell, A. C. 2006. Nutrition and aging: assessment and treatment of compromised nutritional status in frail elderly patients. *Clinical interventions in aging* 1(1): 67. Website [online] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2682454/ Accessed 20 June, 2020

Whitehead, T. L. 2004. What is ethnography? Methodological, ontological, and epistemological attributes. *Ethnographically Informed Community and Cultural Assessment Research Systems (EICCARS) Working Paper Series,* University of Maryland. College Park, MD. Website [online] https://static1.squarespace.com/static/542d69f6e4b0a8f6e9b48384/t/56495b19e4b0bfd3ce24605d/1447648025111/EpiOntAttrib.pdf Accessed 15 March, 2021

Whitehead, T. L. 2005. *Basic classical ethnographic research methods*. Ethnographically Informed Community and Cultural Assessment Research Systems (EICCARS). Working Paper Series. College Park, MD: University of Maryland. Website [online] https://www.depts.ttu.edu/education/our-people/Faculty/additional_pages/duemer/epsy_5382_class_materials/2019/Basic-Classical-Ethnographic-Research-Methods-Whitehead-2005.pdf Accessed 15 March, 2021

Wiafe, E. D. 2016. Wildlife laws monitoring as an adaptive management tool in protected area management in Ghana: a case of Kakum Conservation Area. *SpringerPlus* 5(1):1-8.

Wilcox, C. 1991. The causes and consequences of feminist consciousness among Western European women. *Comparative Political Studies*, *23*(4): 519-545.

Wild Animals Preservation Act, 1961 (Act 43). Biodiversity Conservation Programme. **https://bcp.gov.gh/acc/registry/docs/WILD%20ANIMALS%20PRESERVATION%20ACT,%201961%20(ACT%2043).pdf** Accessed 15 July, 2021.

Wilfred, P. and MacColl, A. D. 2010. Income sources and their relation to wildlife poaching in Ugalla ecosystem, Western Tanzania. *African Journal of Environmental Science and Technology* 4(12): 886-896.

Wikström, E. and Sténs, A. 2019. Problematising refugee migrants in the Swedish forestry sector. *Transfer: European Review of Labour and Research*, *25*(1): 63-80.

Wilkinson, D., Smith, G. C., Delahay, R. J. and Cheeseman, C. L. 2004. A model of bovine

tuberculosis in the badger Meles meles: an evaluation of different vaccination strategies. *Journal of Applied Ecology* 41(3): 492-501.

Winker, G. and Degele, N. 2011. Intersectionality as multi-level analysis: Dealing with social inequality. *European Journal of Women's Studies* 18(1): 51-66.

Woodroffe, R. and Ginsberg, J. R. 1998. Edge effects and the extinction of populations inside protected areas. *Science* 280 (5372): 2126-2128.

Woodroffe, R., Hedges, S. and Durant, S. M. 2014. To fence or not to fence. *Science* 344(6179): 46-48.

Woodroffe, R. Thirgood, S. and Rabinowitz, A. 2005. *People and wildlife, conflict or co-existence?* (Vol. 9). Cambridge University Press.

Woolaston, K., Flower, E., Van Velden, J., White, S., Burns, G. L. and Morrison, C. 2021. A Review of the Role of Law and Policy in Human-Wildlife Conflict. *Conservation & Society* 19(3): 172-183.

Woyke, J. 1992. Diurnal and seasonal variation in defensive behavior of African bees Apis mellifera adansonii in Ghana. *Apidologie* 23(4): 311-322.

Yadav, S. S. and Lal, R. 2018. Vulnerability of women to climate change in arid and semi-arid regions: The case of India and South Asia. *Journal of Arid Environments, 149*: 4-17

Young, J. C., Jordan, A., Searle, K. R., Butler, A., Chapman, D.S., Simmons, P. and Watt, A.D. 2013. Does stakeholder involvement really benefit biodiversity conservation?. *Biological*

conservation, 158 (2013): 359-370.

Yuval-Davis, N. 2006. Intersectionality and feminist politics. *European journal of women's studies*, *13*(3): 193-209.

Whitfield, L. 2005. Trustees of development from conditionality to governance: poverty reduction strategy papers in Ghana. *The Journal of Modern African Studies*, *43*(4): 641-664.

Wright, M. G., Spencer, C., Cook, R. M., Henley, M. D., North, W. and Mafra-Neto, A. 2018. African bush elephants respond to a honeybee alarm pheromone blend. *Current Biology* 28(14): 778-780.

Zimmerer, K. S. and Bassett, T. J. 2003. "Approaching political ecology: Society, nature, and scale in human-environment studies". In *Political ecology: An integrative approach to geography and environment-development studies*, Edited by: Zimmerer, K. S. and Bassett, T. J. 1–28. New York: Guilford Press.

Appendices

Appendix 1

The Cultural Ecology of Health and Change (the CEHC)

EEICARS Workbook for Descriptive Observations of Social Settings,

Acts, Activities and Events

Worksheets for General Descriptive Observations

Project Title ……... **Date of Observation……..…**

Event/Activity Name……. **Recorder's Name……**

Beginning Time of Observation……. **End Time of Observation……..**

Project Phase……

Directions: This worksheet is to be used in the traditional ethnographic sense of recording general descriptive notes of observation. It consists of two columns; (1) General descriptions of what is observed; and (2) Reflective or theoretical notes regarding what is being observed. It is particularly useful for jotting down descriptive notes while in the field setting. However, if the ethnographer does not have the time to jot things down while in the setting, he or she should take notes immediately upon leaving the setting.

Descriptive Notes	***Reflective/Theoretical Notes***

Appendix 2

CEU Checklist on Ethical Issues in Research

This Checklist is intended as a guide for CEU students/researchers in planning, designing and carrying out research, and for applying approval to the Ethical Research Committee. The numbers in brackets indicate the relevant Points of the Guidelines on Ethical Research. When applying for approval from the Ethical Research Committee, please provide explanatory answers that enable the ERC to assess whether the Guidelines were followed.

A. General information

1. Project name/title of thesis/dissertation:
Gender and Human-Wildlife Conflict in the Kakum Conservation Area, Ghana
2. Name(s) of Applicant(s):
Galley Wisdom
3. Contact information of Applicant(s):
+447788857258
4. Department/Research Center:
Department of Environmental Sciences and Policy
5. Research Supervisor (if applicable):
Dr. Brandon Anthony
6. Supervisor's contact information:
anthonyb@ceu.edu
7. Date by which a decision on this application is required in order that the project can proceed as planned, if approval is required:
1 December 2019
8. Expected date of completion:
30 January 2021
9. Abstract of the project/thesis/dissertation:

Human-wildlife conflict (HWC) has become a menace in the communities surrounding the Kakum Conservation Area (KCA) in Ghana. This situation is ascribed to various factors such as the increase in human activities around the park and the pressure to transform lands near the park for agricultural purposes. These factors have inevitably increased the likelihood of residents coming into contact with wildlife resulting in competition between residents and wildlife as well as escalating animosity between residents and park officials. Although the direct effects of HWC on residents has been examined, the indirect impacts of HWC, as well as the different ways by which men and women are affected, have been unexplored. It is on this premise that this study guided by Feminist Political Ecology adopts an ethnographic approach to examine the impacts of HWC in KCA. Addressing this gap in literature will not only increases our understanding of how gendered relations influence conservation efforts but also highlights how better conservation outcomes can be achieved through gender-sensitive approaches.

B. Funding

10. Sources, researchers' and their organisation's financial interests and ethical issues in case of external funding:
N/A

C. Participants

[If the research does not involve human subjects, go to section D.]

11. Does the study involve human subjects, and how? [Who will participate in the research? How will the subject/respondent group be chosen, what sampling techniques will be deployed? In which ways will the participants be involved? (2.1)
The participants for the research will include selected traditional authorities, local government officials, officials of local NGOs, officials of government agencies and institutions such as the Wildlife Division of the Forestry Commission as well as local residents who will be selected through purposive and snowball sampling.
12. Are there potential benefits and hazards for the participants? [Are there risks to the subject entailed by involvement in the research? Have procedures been established for the care and protection of subjects? Will the participants be informed of possible risks and hazards?] (2.2 – 3.4)
The research will pose no physical harm or distress to the participants
13. Does the research involve any risks or pose danger to the researcher(s)? [If yes, what procedures will be adopted to minimize the risks? Have the health and safety guidelines relevant to the area and character of the research been consulted and implemented?] (4)
The research will not pose any serious risk to the personal safety of the researcher. However, there is a high risk of contracting malaria. This risk will be minimized by taking the necessary precaution measures such as using mosquito repellant creams and anti-malarial medication.
14. Will all procedures ensuring that consent is informed be followed? [Including the possibility for withdrawing consent] (5.1)
Participants will be provided with verbal and written explanations of the research project and given the opportunity to ask any questions at all stages of the research. Participants will be given consent forms to carefully read. Participants will be asked to sign the forms stating they understand the details

of the project and agree to be part of the research. However, in areas on low literacy rates, oral informed consent will be sought from illiterate participants. It will also be stressed that should participants feel uncomfortable with any part of the research process, for any reason whatsoever, that they will be free to withdraw at any time without providing an explanation. A copy of the consent form that will be distributed to participants has been attached to this application for ethics approval (appendix 3).
15. Are the recruitment procedures well planned, and risks of coercion considered? [Might subjects feel compelled or "obliged" to participate? How is voluntariness ensured? Does the participation of research involve financial or other remuneration?] (5.2)
Participants will be briefed on the details of what the project entails as well as orally stressing that participating in the study is voluntary with no financial remuneration.
16. Does the research involve incompetent adults, children, prisoners, other vulnerable groups, or contexts where obtaining consent is impossible (i.e. public context, groups)? [Which "consent"-procedures will be applied instead?] (5.3 – 5.5)
N/A

17. Does the research involve deception – and/ or experiments involving humans? In case deception of participants is involved: how is the impossibility to employ alternative non-deceiving method of research justified? How is the deception integral to the viability of research? Will debriefing be employed and how will the participant's reactions influence the use of the data obtained?] (5.6 – 6) Projects that include non-participating or non-consenting subjects (e.g. as control groups and for comparison) need to also consider potentially adverse consequences for any such non-participants. This includes cases where differential access to information and other resources is provided as part of projects that might inappropriately favor or disadvantage some groups and individuals over others.
N/A
18. Will confidentiality and anonymity be secured? (8)
Pseudonyms will be used throughout the research in order to ensure anonymity and confidentiality.
19. Will data protection and storage requirements be followed? (8)
The data obtained for the study will be digitally organised and stored securely on my password protected seagate external hard-drive
20. Are there any plans for future use of the data beyond those already described?
N/A

D. Other Aspects:

21. Dissemination of findings: [What is the anticipated use of the data, forms of publication and dissemination of findings, etc.? In areas where information is jointly owned by participants as co-researchers attention should be paid to how the former want to use the data.]
The data obtained will be used for my PHD thesis which will be published and made accessible to the public
22. Have you considered how to ensure that ethics considerations are reviewed as the project proceeds? [This is particularly relevant for projects that go on over a longer time period.]
To handle any ethical issues that may arise as part of the research, I will first consult the committee members and the most ethically viable course of action will be pursued based on the counsel of the committee members.

23. Is there any other information, which you think would be relevant to the reviewers', or your own consideration of the ethical issues raised in this documentation?
N/A

DECLARATION

The information supplied above is to the best of my knowledge and belief accurate.

Signature of Applicant: **wisdom**

Date: **20/11/2019**