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Lilyon Conroy
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A Socio-Ecological Perspective on Integrating Biodiversity Conservation and the Security-
Development Nexus in Sub-Saharan Africa

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Fall 2021

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ABSTRACT

The purpose of this paper is to examine the potential of community-based biodiversity conservation as a security-development strategy in Sub-Saharan Africa. While the creation of the security-development nexus has been an essential component in mainstreaming the principles of sustainable human development, there exist numerous gaps in the nexus. With the aid of four expert interviews, this analysis critically assesses the role of the environment and of local communities in successfully implementing the security-development nexus. Using the existing body of work comprising the security-development nexus as a framework, this research examines why biodiversity conservation has been overlooked as a security-development strategy as well as the potential that biodiversity conservation has in addressing social, political, economic, and cultural distress within civil society. This discussion is then followed by an analysis that determines why community-based conservation may be the optimal approach to achieving security and sustainable human development in Sub-Saharan Africa using a case study from the Democratic Republic of Congo.

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LIST OF ABBREVIATIONS

ACCORD	African Centre for the Constructive Resolution of Disputes
AFDL	Alliance of Democratic Forces for the Liberation of Congo
CAR	Central African Republic
CIA	Central Intelligence Agency
DRC	Democratic Republic of Congo
IISD	International Institute for Sustainable Development
IUCN	International Union for Conservation of Nature
MMT	Mbou-Mon-Tour
NGO	Non-governmental organization
PPP	Public-private partnerships
UN	United Nations
UNDP	United Nations Development Programme
UNODC	United Nations Office on Drugs and Crime Regional Office
WWII	World War II

INTRODUCTION

Research Question and Framework

Drawing a link between the field of security and the field of development remains one of the most important events in mainstreaming sustainable human development into both national and international agendas. However, despite this progress, the security-development nexus itself has fallen into a pattern of relying on outdated definitions of both ‘security’ and ‘development.’ Therefore, the nexus remains underexplored in its existing body of literature. The self-imposed limitations on security-development literature has tangible implications for security-development policy, and consequently, the application of the nexus often falls short of its full potential. The rudimentary conceptualization of the security-development nexus is especially visible in the way it ascribes passive roles to two of the key drivers of sustainable human development: the environment and the primary stakeholders.

The focus of this research will be to critically examine the role of the environment and of local communities in successfully implementing the security-development nexus. This paper will then use an analysis of the existing body of work comprising the security-development nexus as a framework to explore why biodiversity conservation has been overlooked as a security-development strategy as well as the potential that biodiversity conservation has in addressing social, political, economic, and cultural distress within civil society. In this manner, the analysis seeks to determine how might biodiversity conservation be harmonized with the existing security development nexus in a way that promotes a participatory process, long-term peace, and sustainable human development. For the purpose of distinguishing between security and sustainable human development, this paper will primarily define security as freedom from crime, violence, and conflict.

Research Methodology and Ethics

This analysis relied on research from a combination of both primary and secondary sources. Secondary sources consisted of scholarly journals and books which critically examined the relationship between conflict, the environment, and community. These sources were accessed through virtual library databases such as the Tulane University library and the United Nations library. Secondary sources also included research produced by organizations and think tanks such as the International Institute for Sustainable Development (IISD), the African Centre for the Constructive Resolution of Disputes (ACCORD), and International Union for Conservation of Nature (IUCN). Quantitative data was primarily sourced through these avenues as well as the World Bank's DataBank: World Development Indicators and the CIA's World Factbook. While this research primarily employed qualitative analysis, quantitative data was used to substantiate the findings and arguments being made.

The primary sources used in this analysis consisted of a set of various interviews which focused on the personal experiences, opinions, and research of four experts. Although interview participants Alec Crawford and Francine Madden were recruited via email, the interviews with Vincente Paulo Yu and Dr. Jubin Goodarzi were scheduled following informal discussions with the two regarding the research topic. This approach seemed most beneficial as the issue of email non-response was highly prevalent. The format in which interviews were conducted was a combination of in-person interviews and Zoom interviews to accommodate interview participants' concerns regarding the COVID-19 pandemic. These interviews were conducted at various points in the research process, and therefore, each interview was used to clarify or build off of information gathered through secondary source research. In this manner, interview participants were selected based on the needs of the research as is reflected in each participants realm of expertise. For

example, the interview with Dr. Jubin Goodarzi was used to gain clarification on the current limitations of the security-development nexus whereas the interviews with sustainable development researcher Alec Crawford and conflict-sensitive conservation practitioner Francine Madden were used to ground the analysis on concrete examples.

To maintain ethical standards, the author's position as a university student as well as the goals of this paper were clearly articulated to each of the interview participants prior to the interview. At the beginning of the interviews, participants were made aware of their rights to privacy, confidentiality, and withdrawal. This meant that each of the interview participants was given the option to remain as anonymous as they would like and was asked if they consented to being cited in the paper. Interview participants were also informed throughout the interview that they were not required to answer all of the questions asked. At the conclusion of the interview, they were given the option to withdraw previously stated information if they did not feel comfortable with its inclusion in this paper. Participants were also given the contact information of the author in the event that they wished for any of their statements be withdrawn from the record in the time since their interview.

Literature Review

Because the body of research comprising the security-development nexus is vast, the goal of this literature review is to examine research discussing a number of the core principles and findings that characterize the contemporary priorities of the security-development nexus. One such writing that has served as a chief defining work on the security-development nexus was actually written prior to the formal formation of the security-development nexus. In his article entitled "Toward a Theory of Revolution," James C. Davies (1962) explored alternative visions for the causes of collective violence. In this work, Davies synthesized theories from Karl Marx and Alexis

de Tocqueville, both of whom sought to explain the socio-economic factors which contribute to rebellion and civil unrest. Davies then conceived the J-Curve which explains that civil unrest is most likely when a country experiences economic prosperity followed by a period of steep economic downturn (Davies, 1962). He used this explanation to conclude that it is a sudden lack of opportunities that fosters conflict. Davies' theory as well as his link between economic development and security has long since influenced the body of research encompassing the security-development nexus (J. Goodarzi, personal communication, November 24, 2021).

Davies' work went on to guide numerous other formative research publications comprising the nexus, including a co-publication of the Oxford University Press and the World Bank entitled "Breaking the Conflict Trap: Civil War and Development Policy," written by Paul Collier et al. (2003). In this document, Collier et al. posit that war generates underdevelopment through a number of different economic, social and political avenues. For instance, conflict oftentimes damages infrastructure as well as private assets while also giving rise to an increase in crime, refugees, and greater social division within society. Such developments can prompt a militarization of state governance in which social programs are neglected, thereby producing a legacy of uneducated citizens within a weak economy (Collier et al., 2003). Conversely, Collier et al. (2003) further argue that underdevelopment is the principal factor in generating conflict. Within this publication, Collier et al. claim that common explanations of conflict such as ethnic tensions, weak democratic institutions, or inequality are frequently overemphasized and consequently overshadow other critical factors. Rather, Collier et al. (2003) postulate that poverty is the predominant causal factor in igniting conflict as war offers numerous economic incentives to populations facing already low or declining wages.

In contrast to Collier et al.'s (2003) assertions, Leena Gangolli (2011) states in her article "Observations on the World Development Report 2011: conflict, security and development" that it is actually inequality between groups that can function as a driver of conflict rather than poverty itself. Gangolli's article examines the advancements made in the 2011 World Development Report while also considering its limitations. This report highlighted the countless ways in which conflict can hinder development as protracted cycles of violence and weak institutions pose substantial obstacles to development. The report further established that the impact of conflict on development could be measured as it was found that countries experiencing long-term conflict had failed to achieve any of the Millennium Development Goals (MDGs) (Gangolli, 2011). Additionally, the report put forward the concept that the effect of violence on development could be measured, and it was estimated that medium size developing countries experiencing significant internal conflict could expect to lose approximately 30 years of GDP growth (Gangolli, 2011). Furthermore, the report defines security as a "freedom from violence and freedom from fear of violence" but fails to define development. Therefore, while the report adequately analyzes the effect of conflict on development, Gangolli (2011) notes that there is almost no mention of how development can fuel conflict. This oversight reflects a large knowledge gap in the existing body of research. Gangolli (2011) specifies that without this consideration, the work comprising the security-development nexus cannot accurately anticipate how inequitable and imbalanced development can further inspire conflict.

ANALYSIS

The History of the Security-Development Nexus

Following the end of World War II (WWII), the research and practice of development had a sole focus on economic development. Throughout the decades, development theories and

strategies began to evolve to include a more holistic approach in understanding the intersectionality of human development (Lanoszka, 2018). Sustainable human development was first described in a 1987 UN report entitled *Our Common Future*, otherwise known as the Brundtland Report named after Gro Harlem Brundtland, the chair of the commission. This report defined sustainable human development as “the human ability to ensure that the current development meets the needs of the present without compromising the ability of future generations to meet their own needs” (Brundtland Commission, 1987). It was also at this time that conversations surrounding human security began. Much like the field of development, for most of history, the field of security has been rather singular in focus. The term security had primarily been defined as a resilience against harm caused by others and was a notion chiefly relegated to the state (Lanoszka, 2018). This ideology continued in the wake of WWII, as state priorities during the Cold War perpetuated the idea that security revolved around concepts of borders, resources, and military power. In practice, security was synonymous with state security (J. Goodarzi, personal communication, November 24, 2021).

However, in 1994, the United Nations Development Programme (UNDP) Report underscored seven focal points of human security including health security, economic security, environmental security, and political security (J. Goodarzi, personal communication, November 24, 2021). By mainstreaming human development as a fundamental component of security, the UNDP promoted the idea that human development and security are inextricably linked and marked the beginning of a new approach to security. Since then, numerous state governments, multilateral organizations, and NGOs have advocated the significance of the security-development nexus (Stan, 2004). This newfound focus on the connection between security and development is best exemplified in Secretary-General Kofi Annan’s statement at the UN General Assembly in 2005

that “humanity will not enjoy development without security and will not enjoy security without development and will not enjoy either without respect for human rights” (Annan, 2005). Prior to the 1994 UNDP Report, conversations surrounding security were overshadowed by concepts of political influence, economic dominance, or ethnic tensions; and yet, this quote demonstrates the progress that has been made in mainstreaming development as security and vice versa. The security-development nexus today has ultimately proved critical in creating a more holistic approach to security; however, there exists much work to be done in effectively expanding the nexus.

Shortcomings of the Security-Development Nexus

Despite the necessity of the security-development nexus, there are extensive shortcomings in the body of research. With ever-adapting definitions of both security and development, it remains difficult to devise a one-dimensional meaning to ascribe to the security-development nexus as many have attempted to do. Such attempts to achieve a one-dimensional, well-defined nexus have led numerous international research institutions, organizations, and governments to rely on the more traditional attributes of both security and development (Stern & Öjendal, 2010). As can be witnessed in the literature review, the nexus primarily fixates on the socio-economic conditions within a country that can contribute to conflict and vice versa. In this sense, the concept of development within the context of security is frequently diminished to orthodox notions of economic development rather than encompassing the full breadth of sustainable human development ideology. While sustainable human development seeks to identify how factors such as health; the environment; educational institutions; gender parity; and civil society’s institutions all interact to influence a person’s well-being (Lanoszka, 2018), the body of knowledge surrounding the security-development nexus primarily debates whether it is poverty, inequality, or

a lack of opportunities that can drive underdevelopment-related conflict. Although it is essential to consider how these socio-economic factors contribute to regional conflict, this is merely one dimension of development practice which may be linked to security practices. To approach the nexus with such a limited definition of development is to restrict the potential that is generated in linking security to development. For this reason, it must be accepted that the interactions between conflict and development are more multidimensional than is oftentimes argued by the existing body of literature on the security-development nexus.

With this understanding, it is crucial that a renewed focus should be granted to connecting the environment to the existing security-development nexus. Wangari Maathai, a Kenyan social, environmental and political activist and the first African woman to win the Nobel Peace Prize, revolutionized the field of sustainable human development when she illustrated the three components necessary to support a stable society with her African three-legged stool metaphor (Weisshaar, 2009). Wangari Maathai states that the first leg of the stool represents just democratic governance; the second leg represents sustainable environmental management; and the third leg represents a culture of fairness, respect, and justice (Lanoszka, 2018). The imagery not only highlights different development ideals but emphasizes the fact that oftentimes these dimensions of development will reinforce and support one another. Moreover, Maathai uses the stool to explain that each of the three legs of this stool must be granted equal consideration to create a balance, stating that "if we don't have these three balanced legs, no matter who comes, and with whatever [loans or aid], we shall never develop" (Weisshaar, 2009). Because the security-development nexus has not given equal consideration to the role the environment plays in supporting and conversely mitigating conflict, the full breadth of the security-development nexus

remains largely underexplored and the many attempts to integrate this body of research into practice have fallen short of their anticipated goals (Brosig & Sempijja, 2018).

The Role of the Environment in the Security-Development Nexus

One of the most important shortcomings of the security-development nexus is that it ascribes a passive role to the environment. While the environment oftentimes suffers from conflict, it can also serve as a source for conflict through avenues not yet fully explored within the security-development context. Although the security-development nexus does not completely disregard the role the environment plays in fueling conflict, when environmental factors are considered in a security context, they primarily focus on how climate change and environmental degradation impact the economic lives of individuals and communities, or they focus on illegal mineral extraction (V. Yu, personal communication, November 22, 2021). While these are key drivers of conflict, they oftentimes overshadow the ways in which an environment's biodiversity can be weaponized to support armed non-state actors and propel conflict. For this reason, research examining the true extent to which biodiverse resources propel conflict is limited, demonstrating a neglected link between wildlife conservation and security-development concerns. This neglect necessitates a deconstruction of the relationship between biodiverse resource trade and armed conflict, international crime, security, and development concerns within the context of Sub-Saharan Africa (Douglas & Alie, 2014).

Oftentimes, the presence of high-value, biodiverse resources can become a focal point of violent conflict as a function of the 'resource curse.' Although conflict and development practitioners agree that high-value resources are rarely ever the sole cause of conflict, in regions where there is high demand and weak institutions, such resources certainly contribute to the continuation of violent disputes. It is currently estimated that wildlife trade alone is worth

approximately \$332 billion, and the portion of that trade that can be classified as 'illegal' is worth about \$10-20 billion annually (Douglas & Alie, 2014). In low-income countries, wildlife trade can be especially profitable as a single elephant tusk is estimated to be worth more than ten times the average income of many Sub-Saharan African countries. It was further found in a 2012 United Nations Office on Drugs and Crime Regional Office (UNODC) for Southern Africa Report that the per kilogram street value of rhino horn was greater than the per kilogram price of gold (Douglas & Alie, 2014).

In Sub-Saharan Africa, wildlife trafficking and the illegal harvesting of other forest resources are frequently used by armed non-state actors to fund their endeavors (Elkan, et al., 2019). In many of the most conflict prone regions across the Sub-Saharan Africa, it is believed that the biodiverse resource trade is second only to the illegal weapon and drug trade for financing armed groups seeking to propel conflict (Douglas & Alie, 2014). Unlike mineral resources, biodiverse resources such as charcoal, timber, ivory, bushmeat are above-ground and easily attainable meaning that no mining or advanced machinery are necessary to harvest such resources. Consequently, it is more difficult for governments to monitor and police the obtainment and sale of such resources (Milburn, 2014). This illegal harvesting of biodiverse resources is not a new phenomenon. Former rebel leader in the Chadian Rebellion Acheikh Ibn Omar stated that, even in the 1970s, the illegal poaching of Zakouma elephants and subsequent ivory trade served as the main source of funding for the armed struggle to buy weapons, ammunitions and food along the borders of Sudan, Chad and the Central African Republic (CAR) (Elkan, et al., 2019).

Much like the natural environment serves as a key resource in supporting conflict, it is also an important resource in fostering development because of its cultural, social, and economic value. In Sub-Saharan Africa, an increasing number of countries are working to bolster their eco-tourism

industry as it is an industry which is arguably more sustainable in nature because it does not revolve around harvesting a finite number of resources (A. Crawford, personal communication, November 18, 2021). For example, Kenya earns approximately \$400 million each year in ecotourism, and it is estimated that wildlife tourism accounts for 80% of Kenya's tourism industry. In Rwanda and Uganda, the value of gorilla tourism alone earns approximately \$44 million annually (Douglas & Alie, 2014). Ecotourism is an industry which is also more successful at distributing benefits across the population as it requires the help and participation of local communities who may then benefit from additional education opportunities as well as employment (Douglas & Alie, 2014).

The Relationship Between Civil Society, the Environment, and the Nexus

Another key fault with the current body of work comprising the security-development nexus is that much like its reliance on traditional one-dimensional definitions of development, it continues to name the state government as the prime facilitator of security and development (Brosig & Sempijja, 2018). Prior to the conceptualization of the field of development, indigenous knowledge was the sole driver of development, informing communities on how to interact with their environments to produce healthy, stable outcomes. However, as the field of development began to take shape following the implementation of the Marshall Plan, it was primarily developed countries in the Global North who dominated the field. With this shift, so-called scientific knowledge and Eurocentric knowledge became the foundation of the development episteme, and the prestige of indigenous knowledge and practices was contrariwise diminished (Lanoszka, 2018). Consequently, as numerous countries across Africa began to gain their independence in the 1950s and 1960s, they were oftentimes encouraged to adopt one-size fits all models of security and development that were primarily curated by developed countries in the Global North. A core reason why many of these security and development strategies failed is because they do not

incorporate primary stakeholders, those being local populations, into the discussion. Without local knowledge and practices to ground security-development endeavors, they cannot be sustainable (Lanoszka, 2018).

In taking this approach, the current body of literature comprising the security-development nexus defines the civilians being discussed as the object of external economic conditions. While there is some truth in this understanding, it fails to accurately account for the agency of the people being discussed and does not convey how oftentimes these people are the drivers of development. In fact, the active involvement of local populations in security-development initiatives is oftentimes necessary to contextualize the ways in which ‘security’ and ‘development’ are defined when policies are being designed and implemented (Brosig & Sempijja, 2018). For this reason, the depiction of the security-development practice further fails to account for the relationship between local communities and their environment. Many communities in Sub-Saharan Africa have lived sustainably alongside their environment for centuries, and for most of these communities, their relationship to the natural environment goes beyond its potential as a revenue source. Rather, it is a relationship imbued with cultural, historical, political, social, and economic significance in a way that is frequently not captured in academic security-development literature (Brosig & Sempijja, 2018). Although colonial practices destroyed customary systems of land and resource rights across the continent and left many African dislocated, most of these communities still feel a strong connection to their natural environment (Land rights, 2016). While security-development experts are not inclined to consider this factor, in a region like Sub-Saharan Africa, where the local biodiverse forests are simultaneously driving forces of both conflict and development, it is necessary to understand how the primary stakeholders relate to the subject being discussed and

how those sentiments can foster long-term security development initiatives that place people and their environment in the center of the discussion (Endaylalu, 2020).

Biodiversity Conservation in the Context of the Security-Development Nexus

Despite having been suppressed and strained by colonial systems of exploitation, the relationship between local communities and their environment should be celebrated as a foundation for peacebuilding in Sub-Saharan Africa. Because biodiverse resources are frequently used to fund conflict within Sub-Saharan Africa, there exists enormous potential for conservation initiatives to support regional stabilization, security, governance and development by separating armed non-state actors from their sources of funding (Elkan, et al., 2019). Conflict areas situated amidst biodiverse regions, in which human relations with the environment incorporate social, economic, political, and cultural values, are uniquely poised to benefit from conservation practices. In such instances, conservation can serve as an optimal platform for a dialogue that spans beyond existing conflict or differences in culture, socioeconomic status, tradition, and religion. Nature knows no sociopolitical boundaries, meaning that the implementation of conservation initiatives necessitates consideration of societal issues across all divides (Roulin, et al., 2017). Because environmental degradation and conflict threatens all involved parties regardless of their background, joint conservation initiatives have the capacity to unite people from different communities or countries by addressing shared challenges through cooperative actions. In this manner, conservation may serve as an avenue for trust building between various groups with differing interests (A. Crawford, personal communication, November 18, 2021).

Another way of understanding the practicality of conservation in delivering positive peacebuilding outcomes is to examine its socio-ecological applicability. Going beyond its trust building capacity, some security-development practitioners believe that conservation is ideal for

addressing not just security challenges, but also fractionalization in a society. On the subject, Executive Director of the Center for Conservation Peacebuilding Francine Madden stated that, “generally speaking, wildlife becomes a symbolic manifestation of the conflict existing within society.” What she meant by this was that because nature and the environment is such a tangible element within civil society, it has the potential to serve as an entry point for discussing not only issues of endangered species and illegal harvesting of biodiverse resources, but also social functioning (F. Madden, personal communication, November 29, 2021). Because all involved parties have a vested interest in their natural environment, it can act as a platform through which different communities and groups can consolidate mutual trust in one another without needing to broach sensitive subjects at the root of the conflict. In this way, conservation may also cultivate reconciliation between different groups and actors which can in turn foster long-term cooperation, stability, and human development. Without this entry point, it can be extremely challenging for security-development practitioners to approach a community and attempt to address sociopolitical issues (F. Madden, personal communication, November 29, 2021).

However, not all conservation initiatives have had this effect, and some have even been detrimental to the community or environment they sought to aid. This is oftentimes the case with fortress models of conservation. Fortress conservation is a term used to describe traditional approaches to conservation that rely on the belief that natural ecosystems are able to best function when isolated from human interference and activity (Robbins, 2007). Fortress conservation is based on the assumption that local communities rely on forest resources in a manner that is unsustainable or destructive. As a result, human activity within the protected area is limited to tourism, safari hunting, and scientific research while local communities are excluded from accessing lands they have occupied for decades or centuries. Such conservation initiatives have

created a legacy of disenfranchisement and human rights abuses (Robbins, 2007). For instance, between 1990 and 2014, it was estimated that approximately 250,000 people in Sub-Saharan Africa had been forcibly removed from the homes and land when the land around them became a protected area. Consequently, in scenarios in which fortress conservation is being employed, local communities oftentimes feel alienated by the policy as it conveys the idea that state actors are more concerned with the protection of wildlife than they are with human well-being (F. Madden, personal communication, November 29, 2021). Local communities are therefore less likely to support the conservation project. In the context of security and development, fortress conservation can prove counterproductive to the goals of both as it disrupts the economic and cultural lives of local communities and can in turn foster a sentiment of frustration resulting in conflict (Blanche, 2020).

Community-Based Biodiversity Conservation

In order to avoid the pitfalls of fortress conservation, it should be understood that for wildlife conservation to be successful it must rely on support from the indigenous and local communities that live alongside the wildlife. Community-based conservation differentiates itself from more traditional conservation practices in the fact that traditional top-down approaches to conservation have focused on linking conflict, the environment, and development. While community-based conservation similarly seeks to link these various components, it does so in a manner that engages local communities as active stakeholders (Brooks, Waylen, & Mulder, 2013). The idea behind this approach acknowledges that informal, local knowledge is necessary to inform conservation projects, but also, that the socio-economic benefits gained by such communities is both important in its own right and also necessary to reduce the reliance of communities on environmentally harmful activities (Brooks, Waylen, & Mulder, 2013).

Furthermore, situating local grassroots actors at the center of conservation peacebuilding processes offers a complementary approach to traditional top-down methods of environmental governance, security, and human development. In this manner, shifting towards community-integrated conservation peacebuilding distances the peacebuilding process from short-term political considerations and underlying agendas which have plagued conflict management initiatives in the past (Roulin, et al., 2017). Furthermore, the practice of uplifting the role of the local community in the peacebuilding process frequently results in greater long-term sustainability as it promotes cooperative interactions between various actors including the national governments, regional governments, international organizations, park representatives, NGOs, and, of course, local communities. With this practice, many protected areas in Sub-Saharan Africa have the potential to serve as centers of governance and stability because sustaining protected areas necessitates the integration of community-based conservation security efforts with the security efforts of local authorities and national military (Elkan, et al., 2019). In offering this platform for governance, it better allows conservationists to conceptualize peacebuilding at three levels: local, national, and international (Roulin, et al., 2017). At the local level, conservationists should focus on bottom up, joint-cooperation approaches to supporting their community through conservation. To be successful at this level, the role of national leaders is then to provide financial and capacity-building support while also encouraging human development through public-private partnerships (PPP). Similarly, conservation peacebuilding projects offer the international community a common ground platform through which they can direct technical and financial support while simultaneously acting as a dialogue facilitator between communities in conflict (Roulin, et al., 2017).

Nevertheless, community-based conservation frequently faces criticism for idealizing the power of community bonds, decentralizing security and development, and conflicting with economic development. Despite a limited amount of research advocating community-based conservation against these criticisms, a recent quantitative analysis conducted by Jeremy Brooks, Kerry Ann Waylen, and Monique Borgerhoff Mulder (2013) assessing 136 community-based conservation projects across 40 different countries now offers greater insight into the unique benefits of such projects. Of this number, 65 of the projects were located in Africa. In this analysis, researchers used a large comparative database, as well as a multi-level design and model-fitting approach. With this approach, they analyzed community-based conservation success in four outcomes (attitudinal, behavioral, ecological, economic) while simultaneously examining how national and local contexts impact the outcomes of community-based conservation practices. In their findings, they concluded that community-based conservation projects experienced greater instances of successes than failures across all four outcomes. Through this analysis it was determined that the aspects of project design that are most important in delivering project success are local participation in project design and implementation, capacity building components, equitable distribution of resources, and engagement with local traditions and institutions (Brooks, Waylen, & Mulder, 2013).

Perhaps more notably, the study also found that community-based conservation projects can be successful independent of the national contexts in which projects are being implemented. That is to say that unfavorable conditions such as a low human development index, high levels of corruption, and unstable governments at the national level do not hinder the success of well-designed conservation projects that included the criteria above (Brooks, Waylen, & Mulder, 2013). This finding in particular is important because it indicates that community-based conservation is

an intervention strategy which can be implemented irrespective of a weak government with debilitated institutions. If this is the case, the community-based conservation could in fact be the optimal approach to neutralizing conflicts surrounding biodiverse resources and providing holistic socioeconomic opportunities for communities in Sub-Saharan African countries already struggling to maintain institutions of governance.

Although community-based conservation is a practice that is recently gaining momentum, it has been successfully applied in numerous contexts across Sub-Saharan. For example, following a World Bank analysis that found that economic endeavors such as mining, road development and agriculture would result in an overall loss for the Tanzanian economy, the country decided to direct its focus towards ecotourism, which is tourism that prioritizes experiencing a region's natural environment. During this time, the Tanzanian government turned to local communities to aid in the conservation project and eventually, the government worked to transfer user rights to the local communities through the creation of Wildlife Management Areas (Lee, 2018). In these areas, local communities set aside portions of their land to be used for conservation and eco-tourism. In return, the communities receive a majority of revenues from these areas. These Wildlife Management Areas also act as buffer zones around national parks to promote conservation in the park itself, reduce instances of wildlife-human conflict, and distance human activities such as subsistence farming from the parks (Lee, 2018). There are now 19 operating Wildlife Management Area comprising 7% of Tanzania's total land area, and another 19 Wildlife Management Areas are being planned. Today, ecotourism in Tanzania produces approximately \$6 billion annually representing about 13% of total GDP. Furthermore, the sector directly employs about 700,000 people and indirectly employs another 1.5 million people thereby demonstrating the potential development impact of community-based conservation (Lee, 2018).

The Case of the Democratic Republic of Congo

Background on the Conflict in the DRC

In the wake of the 1994 Rwandan Genocide, in which over 800,000 Tutsis were killed by Hutu Rwandans, the Democratic Republic of Congo (DRC) witnessed an outpouring of over one million Rwandan refugees into the eastern region of the DRC. Most of these refugees were Hutus who feared retaliation from the Tutsi government of Rwanda. This group of Hutu refugees included armed genocidaires who became the target of the Rwandan government (Violence in the DRC, n.d.). During this time, the Alliance of Democratic Forces for the Liberation of Congo (AFDL) began to form under the leadership of Laurent Kabila in opposition of the then-president Mobutu Sese Seko. In 1996, Rwanda invaded the DRC with the help of the AFDL attacking Hutu rebel groups (Rwanda genocide: 'Domino effect', 2014). This conflict evolved into the First Congo War which then drew support for both sides from neighboring countries including Uganda, Angola, and Zambia as well as other armed groups. The First Congo War ended in 1997 when Mobutu Sese Seko was replaced by Laurent Kabila who quickly called for the removal of Rwandan and Ugandan forces (Violence in the DRC, n.d.). About a year later, in 1998, the Second Congo War began. Kabila's government forces backed by support from fellow countries including Angola, Namibia, and Zimbabwe fought rebel forces which were largely backed by the Rwandan and Ugandan governments (Violence in the DRC, n.d.). In addition to drawing in neighboring countries, the war drew over 25 armed groups to the eastern region of the DRC. It is estimated that over 3 million people died in the Second Congo War making it the deadliest conflict since WWII (Tamm, 2019). Although a peace agreement was reached in 2002, many of these armed groups grew and fragmented into more rebel forces who continue to perpetuate violence and instability within the country today (Tamm, 2019).

Current Status and Key Considerations

Today, there are over 100 armed groups fighting for power in the DRC (The Facts, 2020). This conflict is in part driven by the fact that the DRC has large endowments of mineral resources such as copper, cobalt, and coltan. It is estimated that the country holds \$24 trillion of untapped mineral resources (Violence in the DRC, n.d.). Consequently, the existing democratic regime is constantly fighting authoritarian rebel groups vying for control of these vast resources. This kind of instability has thereby impeded the functioning of the country's democratic institutions (Nzongola-Ntalaja, 2006). Today, the influence of the DRC's central government is essentially limited to Kinshasa meaning that the country's system of governance has evolved to form a potent combination of traditional governance and western governance (V. Yu, personal communication, November 22, 2021).

The country's mineral wealth often overshadows another key consideration regarding conflict in the DRC: the country's wealth of biodiversity. The DRC is ranked as the fifth most biodiverse country in the world, and it houses the Virunga National Park, which is the second most biodiverse forest in the world. It is estimated that the value of resources in Virunga National Park alone is approximately \$1.1 billion annually (The Economic Value of Virunga National Park, 2013). For this reason, the environment of the DRC has played a significant role in propelling the country's armed conflict. For several decades, the DRC has been facing both interstate and intrastate conflict, in which most parties involved have relied on the diverse environment to fund their military or political campaigns. Unlike mineral resources, resources such as charcoal, timber, ivory, bushmeat, and other forest resources are above ground and easily attainable meaning that no mining or advanced machinery are necessary to harvest them making the obtainment and sale of the resources harder to monitor and police (Milburn, 2014). Furthermore, much of this

biodiversity is destroyed by the increased amounts of conflict-related foot traffic taking place in the eastern region. For example, Virunga National Park has sustained loss of biodiversity as internally displaced persons and refugees have used the park's wildlife for its life sustaining resources including bushmeat and timber (Butsic et al., 2015).

Additionally, Africa's Congo Basin forests are of significant cultural, economic, and social importance for local communities throughout the country. Indigenous and local communities have lived interdependently with the forests for centuries, sustainably harvesting biodiverse resources. However, in addition to biodiversity loss and deforestation, indigenous and local communities have further suffered from a loss of land rights as a result of colonial systems which overturned existing customary systems of land and resource rights (Land rights, 2016). When postcolonial regimes replicated Western models of landownership, it further propelled the issue of land rights, dislocation, and civil unrest. Despite this disenfranchisement, most people in the DRC still feel a strong connection to their natural environment, and when it is possible, at the local level, customary law is still applied (Land rights, 2016). Today, approximately 70% of the country's population lives in rural areas with the number of people living in these rural areas continuing to grow at a rate of 2.34% each year (DataBank World Development Indicators, 2021). These rural populations are highly dependent on the resources and services that the forests provide thereby making these biodiverse forests the "wealth of the poor" (Milburn, 2014). Rural communities utilize the forests' resources for kindling, medicine, habitat, and food. Therefore, damage to the biodiverse forests of the DRC would result in disaster for a majority of the country's 105 million people (Congo, Democratic Republic of the , 2021).

Although peace and stability would mitigate conflict-induced damage, it allows for uninterrupted commercial exploitation of biodiverse forests. Due to a lack of stability, commercial

logging companies in the DRC have been forced to close either temporarily or permanently (Butsic et al., 2015). As conflict continues in the DRC, the overall rate of deforestation in the country is estimated to be 0.33 percent per year which is far lower than other West or Central African nations. Therefore, if armed conflict were to cease, these logging and timber companies would be better able to utilize existing infrastructure to safely access forested areas which would result in loss of habitat and therefore biodiversity (Milburn, 2014). For this reason, conservation practices would be ideal to ensure that even once peace becomes more widespread that biodiverse nature is maintained.

Community-Based and Conflict-Sensitive Conservation Practices

Considering the findings of Brooks, Waylen, & Mulder (2013) that community-based conservation can be successfully implemented regardless of the national context and a country's instability, it is possible that community-based conservation could be the ideal intervention strategy to combat issues of instability and underdevelopment in the DRC. In the past, local communities have had to compete for land access with infrastructure projects, industrial resource extraction, large-scale agriculture, and even conservation initiatives. In terms of conservation, the Congolese state has already set a goal for formally protecting 17% of the country's land with about 11% of that land already being formally protected (Land rights, 2016). However, a vast majority of these conservation projects have relied on fortress conservation models meaning that local communities were forbidden from accessing their ancestral lands and were treated as squatters further exacerbating this issue of dislocation and civil unrest. Despite this fact, legislation in the DRC in the past decade has begun to acknowledge community land rights, and the country has even seen a trend towards community-based conservation (Land rights, 2016). For instance, in 2014, the national government passed a law which allows communities to apply for concessions

which would grant them formal ownership rights over their land under the condition that they find a use for the land that generates income while adhering to sustainable practices (Berendt, 2018). Examples of such activities include the collection on non-timber forest products. Natural forests hold countless non-timber resources such as aromatic plants sap, seeds, berries, foliage, fuel wood, and medicinal plant-based products which has an estimated global market of about \$60 billion (Ahmad, 2004). The Ilima community is one such example of a community that has been granted concessions; however, having experienced the benefits of conservation and ecotourism, they have decided to fully commit their forestry concessions of 400 square kilometers to conservation (Berendt, 2018).

Another community-based project in the DRC demonstrating the cohesion between conflict, the environment, and human development can be found in the Congolese NGO Mbou-Mon-Tour (MMT). MMT was first created in 1997 by the people of Nkala village for the purpose of fostering local human security and development through bonobo conservation (Narat, et al., 2015). MMT established a number of protected areas within the region to increase community revenues from eco-tourism and reduce the conflict surrounding the illegal poaching of bonobos, an endangered species of great ape. Since the establishment of the first bonobo protected area in 2001, MMT has supported about a dozen other villages in creating their own protected areas eventually expanding to a total of 200 square kilometers of protected areas (Narat, et al., 2015). To achieve sustainability of this project, MMT has worked alongside traditional chiefs and opinion leaders within these villages to not only coordinate conservation efforts, but also educational programs to help teach local communities about the importance of conservation and eco-tourism in the future of community development. These educational programs have since reached over 6,000 students and adults (Narat, et al., 2015). MMT has also worked with villages under the

organization of traditional chiefs to develop sustainable agriculture practices in order to decrease dependence of the local forests for sustenance. In this manner, MMT ensures that sustainable development is on the local communities' terms. This notion of self-determination is a central pillar of each of MMT's initiatives, and it is one that they argue is oftentimes abandoned when national and international institutions become involved in community-based conservation projects. For this reason, MMT advocates the importance of self-determination in community-based conservation, so that in the future, these national and international institutions are better prepared to respect the leadership role of local communities in conservation and development (Narat, et al., 2015).

CONCLUSION

Since the 1990s, when the security-development nexus first originated, the episteme surrounding this nexus has failed to incorporate numerous traits and advancements within the sustainable human development field. Consequently, the conversation surrounding the nexus and the practice of linking the two has not advanced in the manner necessary to produce the most effective sustainable results, and it has even led to the development of misinformed and poorly conceived policies. Two of the most notable shortcomings of the security-development nexus is the neglect given to the role of the environment as well as the role of the primary stakeholders within the nexus. The analysis within this paper found that it is necessary to examine the role of both local communities and the environment, as well as how the two interact in fostering stability and human development. Furthermore, it was found that for security-development policies to be most effective and sustainable in the long-run, both local communities and the environment should be viewed as the engineers within the security-development nexus rather than objects of external conditions.

Given this finding, the analysis then turned to the efficacy of biodiversity conservation, and specifically community-based conservation, as a security-development strategy. Because the environment is an important subject for many groups, the environment may be used as a point of entry into community dialogue. For this reason, conservation has the potential to be used as a platform for peacebuilding between different groups. Community-based conservation seeks to draw on this potential and substantiate it with local knowledge and resources to ensure the long-term sustainability of conservation efforts. In return, community-based conservation can be conducted in a manner that delivers revenues to local communities through ecotourism programs among other methods. Such practices have been applied in numerous countries across Sub-Saharan Africa such as the DRC which is home to the world's second largest biodiverse rainforest as well as some of the most long-lasting conflict in Sub-Saharan Africa. Because the country lacks a strong central government, the case of the DRC further illustrates that decentralized, community-based conservation initiatives may be the optimal approach to supporting sustainable peace and development in the region.

Despite the many insights this analysis offered, there remain numerous potential research topics relating to community-based conservation and the security-development nexus. Because the security-development nexus episteme remains fairly one-dimensional in its concepts of 'security' and 'development,' research focusing on harmonizing other key subjects such as demographic transition or resilience in international disasters into the nexus could be beneficial. As the analysis previously noted, there is also dearth of literature studying the benefits and efficacy of community-based conservation as a security strategy. The results of this research indicate that community-based conservation could serve as an ideal intervention for many communities and regions across Sub-Saharan Africa, and for this reason, it should be studied further.

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