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EDITORS' NOTE

It is our pleasure to welcome our esteemed readers to this issue of Tanzania Zamani. Like the immediate previous release, this issue consists of five articles that cover a wide range of historical issues; ranging from diseases, war and agricultural marketing societies, to colonial labour and wildlife ecology. Similarly, the articles cover different time periods spanning from the late 19th century to the present. Although so diverse in terms of themes and temporal scope, the contributions are all bound together by their common thrust on human historical experience in Tanzania.

In the first article, Lorne Larson joins John Iliffe, Megan Vaughan and other historians of Africa in highlighting the history of leprosy in colonial East Africa. Larson's article focusses particularly on how, during the period before the First World War, ideas about the nature of this disease and practices in handling it spread from Germany to the territory now known as Mainland Tanzania. In narrating this journey of ideas and practices, the author identifies the contexts in Germany where they developed, a diversity of colonial administrative and religious structures that played differing roles in interpreting and handling leprosy in the colony and changes in colonial official policy on how to deal with the disease. In the final analysis, Larson argues that the result of the complex historical process was adoption of a model for handling leprosy in German East Africa that was largely territorial and decentralised.

The second article by Frank Masele reports on an initial archaeological investigation of the German-Hehe battlefields in the Tanzania's Iringa Region. This is the first attempt to employ archaeological methodology to study the famous 1891 Battle of Lugalo, in which Hehe forces under the command of Mkwawa defeated German colonial forces. According to the author, the investigation was conducted to obtain data for use in what he calls military terrain analysis, being an aspect of modern conflict archaeology. During the fieldwork, the author was able to collect more than a dozen bullet cartridges that are linked to the battle under investigation. In writing the article, the author uses the particulars found on these cartridges and the geographical features of the battlefield to "clarify, validate and reconcile" the information already gathered from documentary and oral historical sources. With the preliminary archaeological data at hand, the author is able to not only contribute to the existing scholarly debate on the particularities of the military engagement in the Lugalo Battle but also suggest the conditions under which the Hehe won the battle despite their comparatively inferior weapons.

In the third article, Somo Seimu examines the history of agricultural marketing societies in British colonial Tanganyika. The article concentrates on the efforts made by the colonial authorities to promote the development of these societies in various parts of the territory. Based mostly on data from archival sources, the author points out that the

initial drive for the promotion of agricultural marketing societies was to emasculate the all too powerful self-initiated planters' associations (NPAs) such as the Kilimanjaro Native Planters' Association (KNPA). The article discusses the ragged path through which Agricultural Marketing Co-operative Societies (AMCOs) passed during their evolution. The turning point in this process was the institution of the Cooperative Legislation of 1932, which promulgated establishment of AMCOs in place of the NPAs. Yet, efforts to promote the latter associations was marred by various factors, including differences in perspectives and interests among and between colonial authorities at various levels, including the empire, territory, provinces and districts. The outcome was lack of coordinated effort and, consequently, limited attainment of the intended goals. The author argues that the generally poor outcomes were not surprising given the fact that, right from start, the initiative to embark on the promotion of Agricultural Marketing Cooperatives was driven not by genuine will to improve the wellbeing of producers but by a political motive to inhibit the power of the prospering Native Planters' Association.

The fourth article by Hezron Kangalawe addresses the theme of colonial economy, particularly the question of labour supply and discipline in settler farms in British colonial Tanganyika. In contrast to many studies on the labour question in African colonial economy, which mostly focus on labour exploitation and colonial government's facilitation of the process, Kangalawe focusses on tensions between the

colonial government on one hand and settlers on the other regarding the same questions of labour supply and discipline. Based mainly on archival sources, the author shows how settler farmers in Iringa complained about the colonial government's laxity in enforcing labour discipline against what they claimed to be Africans' laziness and excessive drinking of alcohol. He also documents European settlers' complaints about Africans' insensitivity to environmental degradation in their use of land resources; and thus, justifying transfer of land from such users to European settlers for sustainable use. In contrast to the line taken by many other scholars on this subject, the author submits that the colonial government's responses to these complaints and demands were cautious of the fact that the settlers needed to create conditions that would attract African labourers to the plantations, and to the dangers of disturbing the subsistence economy of the majority Africans. By revealing these realities, the article provides a clear illustration of contradictions between the interests of the colonial state on one hand and those of the settler community on the other in an African setting.

The fifth and last article by Makarius Itambu presents an overview of existing literature on the impending extinction of the African wild dogs. It underlines the widely acknowledged rapid decline of these species in most parts of Africa and discusses the causative historical factors for this trend. Itambu places this phenomenon in the broader

context of the global decline in biodiversity and the role of human agency in the making and unmaking of this conundrum. Thus, besides sketching the declining pattern in the numbers of African wild dogs in different part of the continent over time, the author explains the ways in which human activities around and within conserved areas have resulted in habitat fragmentation as well as in direct negative effects on the population of wild dogs. The article also recommends policy and administrative measures to reduce the alarming rate of decline of the species under discussion.

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Disease, Science and Religiosity: A Case Study of Leprosy in German East Africa

Lorne Larson
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Abstract

Leprosy generated an intense amount of interest (and activity) in German East Africa in the immediate years before the First World War. It was an interest quite different from the economic and demographic considerations of most other diseases. This is not a judgement specific to this location. Across time, across diverse cultures, across the globe leprosy often functioned as a metaphor for wider concerns and metaphysically diverse discussions. When John Iliffe published The African Poor in 1989, he devoted a whole chapter to leprosy; no other disease received this preferential treatment in his book. Two years later Megan Vaughan used the same device in Curing Their Ills, a more focused study of illness and disease on the African continent. This essay is more specific. It traces the narrative thread of this disease from a specific metropolitan perspective in the German Reich down to actions at a territorial and district level in German East Africa. It looks at the diversity of responses in that space, including the differential involvement of Christian missionary societies. It considers the possibility that the proposals for expanded care of lepers arrived at a time when Roman Catholic nuns in particular were looking for a role that could fit their more

restricted and cloistered status. It also looks at leprosy care in the parallel context of an increased African awareness of European bio-medicine, an acceptance that would have long-term consequences for the shape of medical care in Tanzania.

Key words: Disease, Leprosy, Christian missionaries, Tabora, Mahenge, German East Africa

1. Introduction

This essay has two broad interconnected themes. First, it seeks to establish the intellectual and organisational background to a significant change in official leprosy policy in German East Africa in the years before the First World War, a major shift in thinking about carcerality, of how far governments were prepared to physically segregate the afflicted and place them in remote locations.[1] What did emerge was the adoption of a more territorial, decentralized model, albeit one that developed on the ground with significant regional diversity.[2] That model did not

[1] For a more global coverage of the carcerality debate around leprosy at this time, see Reinaldo Guilherme Bechler, *Leprabekämpfung und Zwangsisolierung: im ausgehenden 19. und frühen 20. Jahrhundert: wissenschaftliche Diskussion und institutionelle Praxis* (Chisinau: Südwestdeutscher Verlag für Hochschulschriften, 2011). Bechler combines his global analysis with a Brazilian case study.

[2] A useful coverage exists in Wolfgang Eckart, *Medizin und Kolonialimperialismus*: *Deutschland 1884–1945* (Paderborn: Ferdinand: Schoningh, 1997), 319-340. His specific East African leprosy coverage is based on an earlier approach in Wolfgang Eckart, *Leprabekämpfung und*

deliberately encourage the participation of Christian missionary societies, yet that is exactly what happened, and on a significant scale. It is that missionary involvement provides the focus for an additional line of analysis, one that examines the role that the female missionary figure often played in the operational administration of leprosy initiatives. It suggests that this experience was an important training platform for the subsequent transformation of Christian medical care in the interwar period, a transformation that continued well into the post-independence period.

To aid us in our wider analysis, it may be useful to initially isolate one leper settlement that we can use as a comparative benchmark. The chosen location is numerically significant, created relatively early and significantly involved with Christian missionaries. In a more symbolic fashion, it sits at the geographical centre of the region we are considering.[3]

Aussätzigenfürsorge in das ostafrikanischen 'Schutzgebieten' des Zweiten Deutschen Kaiserreiches, 1884-1914 (Leverkusen: Heggendruck, 1990). A more recent study that puts German strategies in a more regional perspective is Susanne Harflinger, "Die Geschichte der Lepraarbeit in Ostafrika – ein Vergleich der Entwicklung in Tanzania, Uganda und Kenya" (Diss., Rheinischen Friederich-Wilhelms-Universität., 2012). For a specific (and later) Ugandan perspective, see the work of Kathleen Vongsathorn, for example "'First and foremost the evangelist'? Mission and government priorities for the treatment of leprosy in Uganda, 1927–48," *Journal of Eastern African Studies* 6, no.3 (2012): 544-60.

[3] In a similar fashion, the 'Morogoro' settlement near Peramiho is used as a recurring reference point in Richard Hözl, "Lepra als *entangled disease*. Leidende afrikanische Körper in Medien und Praxis der katholischen

2. That Other Tabora

In 1909 the Benedictine missionaries based at the Kwiro mission in the Mahenge Highlands of southern German East Africa proposed the establishment of a joint government-mission leprosy project. The proposal was framed locally and presented to the *Bezirkschef* of the Mahenge military district situated a few kilometres from the mission. The military station was not ignorant of the local existence of leprosy; since 1907 its own officials had done various investigations in the vicinity, and even considered the possibility of a leper settlement. However, the mission's proposal was initially rejected on economic grounds. The missionaries waited patiently for a few months and successfully re-submitted their proposal to a new district administrator. Once the military station had decided to participate in the project it moved swiftly. In October of the same year, orders were issued to all *majumbe* (district leaders) to bring in all their subjects suffering from what we now call Hansen's disease. A special village was laid out by government soldiers to receive them, not too far distant from the Kwiro mission station and district headquarters. It was christened Tabora, for reasons

Mission in Ostafrika, 1911-1945" in *Der afrikanische Körper als Missionsgebiet. Medizin, Ethnologie und Theologie in Afrika und Europa, 1880-1960,* eds. Linda Ratschiller and Siegfried Weichlein (Cologne: Böhlau Verlag, 2015), 95-121. Hözl's comprehensive analysis makes extensive use of missionary sources in a way that is lacking in Eckart's work.

that are obscure.[4] By the end of the year, 441 people had arrived to occupy the site. In the following year a second village was begun adjacent to the first, and the number of inhabitants increased. By the beginning of the First World War a total of 1,381 people had been entered in the registration book of the settlement; 782 were actually surviving at that time. It might be considered to be the largest settlement of its kind in German East Africa.[5]

This was a community that rapidly built its own identity.[6] The original intake consisted of individuals who were often

[4] Tabora was a major commercial settlement of 30,000 inhabitants in the centre of the German East Africa, located along the older central caravan route and – at the time of the establishment of this leper settlement – adjacent to the newly-constructed Central Railway. This almost certainly supplied the inspiration for naming the new settlement. Indeed, the contemporary leper settlement (Linduzi) near Songea was to acquire the designation of 'Morogoro' quite quickly after its founding and was to use this name for the next century. It was not uncommon for new settlements (or new suburbs) in the interior to be named after more prestigious (often coastal) settlements. Kilwa was probably the most ubiquitous example. To avoid any ambiguities, I have enclosed the name of our leper settlement in single brackets.

[5] There are some definitional caveats that could be attached to such an assertion. They will be considered later in the context of a territorial discussion of leper settlements.

[6] Unless otherwise indicated the missionary perspective for the 'Tabora' leper settlement derives from the following contemporary sources: two registration books of the settlement exist within the Mahenge Diocesan Archives [MD]. Within the same repository see specifically Sr. Beatrix Pfäffel, “Kwiro” MD1/1; Fuchs to Spreiter. 31 May 1912. MD/1. Two published descriptions are by Bishop Thomas Spreiter in "Ein Ausssätzigenheim im Bezirk Mahenge von Deutsch-Ostafrika,” Missionsblätter 14 (1909-10): 81-83 and “Das Ausssätzigenheim Tabora,"

more elderly and in advanced stages of the disease; they were the 'obvious' afflicted. They had often been further weakened by a long journey to reach 'Tabora'; the initial high death rate reflected this reality. However, subsequent arrivals tended to be younger and were often accompanied by members of their family who had no obvious signs of the disease. The presence of children created a local demand for education. A school was built by internal labour and staffed by resident teacher-catechists who had previously been trained by the mission. A stone church materialized in the same fashion. The members of the settlement expanded geographically across the area assigned to them on the plateau and soon brought surplus agricultural land into production. It was now easier to talk of a distributed agricultural settlement pattern rather than fixed villages. The Mahenge military station assigned a *jumbe* to administer the settlement on a

Missionsblätter 15 (1911):115-19. See also "Ein Ausssätzigenheim im Bezirk Mahenge von Deutsch-Ostafrika," *Gott will es!* (1910): 129. There is additionally an early summary, often based on primary sources, in a study written shortly after the end of the First World War. See Kaplan Franz Szczypior, "Die sozialwirtschaftliche Arbeit der Benediktiner Missionäre von St. Ottilien fur auswärtige Missionen in Apostolischen Vikariat Dar es Salaam, seit der Gründung daselbst bis zur Auswiesung durch die Engländer (1888 bis 1920)." (Diss., Würzburg,1923). Useful data on the initial settlements is also contained in Eduard Desax, "Entwicklungshilfe der katholischen Missionsgesellschaften in Tansania, ihr Beitrag zur wirtschaftlichen Entwicklung des Landes, dargestellt an den Diözesen Ndanda, Songea und Mahenge." (Diss., Freiburg/Friborg, 1975), specifically 143-151.

day-to-day basis. The inhabitants soon became self-sufficient in agriculture and were additionally cultivating bananas as a cash crop. They petitioned for their own *duka* (shop) in 1911, which was duly opened and run by two educated Christians.[7] That led to the existence of a regular market on the edge of the settlement where crops could be sold or exchanged with the wider area.

The primary external input—and it was an important one—was the regular medical visitation of the Benedictine nuns from the Kwiro mission. As the leper community expanded geographically, the nuns found it increasingly difficult to return home before dark, and movement after dark was known to be dangerous in terms of leopard attacks. A mission rest-house specifically for the nuns soon joined the school and the church. The demands of the leper settlement were beginning to push subtly at the more formal definitions of female claustration within the Benedictine orders! 'Tabora' was a striking experiment but it now must be placed in a global and regional context.

3. The Wider Context of Leprosy

In 1884 Berlin was the venue for a conference of colonial powers that resulted in the nominal division of Africa into spheres of influence. Germany acquired Togo, the

[7] Fuchs to Mahenge Station. 17 September 1911; Von Grawert to Kwiro Mission. 17 September 1911. MD1/5.

Cameroons, German South-West Africa (now Namibia) and German East Africa (now Tanzania). The subsequent hosting of the 10th International Medical Congress in Berlin in 1890 had been a spectacular showcase for scientists of the new German state. Professor Rudolf Virchow, one of Germany's most distinguished and versatile scientists, was one of the three keynote speakers along with Joseph Lister and Robert Koch -- the latter emerging as the new German star in the field of contagious diseases. Virchow had spent significant time in his earlier career in the field of leprosy and had tried to establish a standard global methodology for gathering basic data on this disease. Koch's reputation at the time was based on his work in tuberculosis, for which he was to receive a Nobel Prize in 1905. It is very possible that one of the 5,500 physicians at the conference was a newly-qualified medical doctor by the name of Hugo Meixner, who had just joined the Prussian army. He chose to do his advanced medical dissertation on leprosy in East Africa, the earliest academic study of the disease in this geographical area. In 1901 he transferred to the colonial army in East Africa, the *Schutztruppe*, and from 1903 until the end of the First World War he was the chief medical officer for this force as well as the effective chief medical advisor to the territorial colonial government.[8]

[8] "Meixner" in Heinrich Schnee, ed., *Deutsches Kolonial-Lexikon,* II

In 1897 Berlin played host to another major event highly pertinent to our study, the First International Leprosy Conference.[9] Professor Rudolf Virchow was again present and chaired the proceedings. The German Emperor hosted a reception and the German Minister of Health addressed the proceedings. At the most general level, the active official support of the conference was part of a general showcasing of German science by the German state. Yet there was a completely unexpected metropolitan resonance. It had been generally believed that the last sufferer of leprosy in the German lands had died in 1712; none of the constituent German states mentioned the disease in their current public health legislation. However, in the late part of the nineteenth century, leprosy had been discovered anew within the boundaries of Germany, on the edges of the Russian territories and specifically in the area of the Baltic port of Memel.[10] The Prussian state government, with some alarm, sent a series of experts (Robert Koch among them) to investigate the situation. By 1904 the investigators had tracked down sixty-eight individuals whose infection history

(Leipzig: Quelle & Meyer, 1920), 537. His dissertation from the University of Leipzig was published in 1904. He probably gathered the data in 1902-03. Hugo Meixner, *Beitrag zur Kenntnis der Lepra in Deutsch-Ostafrika* (Leipzig: Bruno Georgi, 1904).

[9] One view of this conference is contained in Shubhada S Pandya, "The First International Leprosy Conference, Berlin, 1897: the politics of segregation," *História Ciências Saúde-Manguinhos* 10 (2003):161-77.

[10] The Baltic territory of Memel, although part of East Prussia at this time, incorporated a significant number of ethnic Lithuanians. It is now part of Lithuania and Memel is now known as Klaipėda .

dated back as far as 1848; only ten of those individuals were still alive.[11] These few surviving individuals were not off-shored to an island in the Baltic; eight of them lived out their lives in sheltered accommodation in the pleasant suburbs of a German village.

Although the investigations recognized that the main entry point for the German infection was the bordering Russian territories on the Baltic coast, it did acknowledge that some of those afflicted had contracted the disease overseas, primarily in Asia (modern Myanmar, Malaysia and Indonesia) as well as South America (Brazil, Venezuela and Columbia). This understanding of the extra-territorial dimensions of leprosy in an era of expanding global trade also drew academic attention to the recently acquired German colonies. There were two government-sponsored leprosaria on the East African coast that dated roughly from the year of the Berlin leprosy conference. (There was also another off-shore settlement administered by the Zanzibari government.)[12] The settlement at Bagamoyo (1897) serviced the northern coast and Kilwa (1898) and Lindi (1901?)

[11] The best analysis of these metropolitan investigations is contained in M. Kirchner, "Die Verbreitung der Lepra in Deutschland und den deutschen Schutzgebieten," *Klinischen Jahrbuch* 14 (1905): 1-18. This includes coverage of Meixner's initial leprosy research in East Africa

[12] Stephen Pierce, "The Leper Settlement at Walezo, Zanzibar: a case study of a colonial-era state-society partnership," *Les Cahiers d'Afrique de l'Est / The East African Review* 45 (2012):117-29.

serviced the southern coast. Hugo Meixner's 1904 medical dissertation focussed specifically on the southern settlement of Noro, an island off Kilwa. In its format the dissertation closely resembled the reports issued on the leprosy outbreak area in Germany, closely detailed medical examinations of each named individual with information about their geographical origin. In the same way that the Prussian investigations focussed on suspected regional and global origins of infection, Meixner's report did a similar analysis for the Kilwa settlement.

> What is worth noting is the large number of Nyasa people, who make up more than a third, 20 of the total of 46 sufferers. That contrasts with only 13 coastal people (Swahili).[13]

Given that both Bagamoyo and Kilwa were two of the most important coastal terminal points for trade from the interior, Meixner didn't think that it was unusual that the Kilwa settlement might reflect the substantial flow of human porterage across the territory and potentially predict hotspots for leprosy within a regional perspective. There was, however, an additional factor for considering a high endemic occurrence in the Nyasa area, and that was the type of leprosy that dominated in that Nyasa group at Noro.

[13] The total categorization was Swahili (13), Nyassa (20), Yao (7) and Others (6). Note that one of the 'Other' category was a Bisa man from Northern Rhodesia. Meixner, *Kenntnis*, 31. The Yao themselves could have originated from a very wide area, both within or without the boundaries of the German colony.

Meixner's suppositions were coincidentally reflected in the same year, when a visiting scientist in that western Nyasa area posited a 20% infection rate among the local population.[14]

Meixner's analysis of Kilwa was his last substantive foray into leprosy studies; he was rapidly distracted by other priorities in his new role as the effective chief medical officer for the colony. The initiative for pursuing the study of leprosy was to devolve into the hands of one of his subordinate medical officers in the *Schutztruppe*, Dr Otto Peiper.[15] Between 1908 and 1911 Peiper (operating initially from a Kilwa base), gathered district-level information from across the colony, subsequently buttressed by a baseline dataset established by issuing a standardized leprosy questionnaire to all districts in 1912. The results of his extensive research were published in

[14] Theodor Bechler, *200 Jahre ärztlicher Missionsarbeit der Herrenhuter Brüdergemeine: Missionärzte, Chirugen, ärztlich tatige Missionare, Diakonissen und Schwestern* (Herrenhut: Missionsbuchhandlung, 1932), 173. Professor D. G. Haussleiter of Halle University, besides being a high-ranking participant in German evangelical movement generally, also came to periodically document their global medical activities. He originally visited the Nyasa area in 1904.

[15] Peiper began his colonial career in 1908 as district medical officer in Kilwa before being transferred to Dar es Salaam. Evaluated in terms of his published epidemiological and ethnographic studies, he was arguably the most innovative medical mind in the colonial service in East Africa.

1913.[16] Before we look at his findings (and recommendations) in more detail it might be useful to look at some contemporary territorial perspectives. For example, the number of medical personnel that could act as Peiper's informants had grown substantially. In 1889 only two doctors had been appointed in the region; in 1900, twenty-six doctors; shortly before the outbreak of the First World War, fifty-five doctors were on the ground. In a recent article Bauche has expressed distinct reservations about the ability of such limited personnel to provide reliable and accurate medical data.[17] I would suggest, more optimistically, that this number of interlocutors – concentrating on a very precise line of enquiry – could provide very useful data both absolutely and relatively. The 1912 questionnaire was also not an isolated event in terms of applied methodology. Indeed 1912 can almost be characterized as the year of the

[16] See Otto Peiper, "Die Bekämpfung der Lepra in Deutsch-Ostafrika, "*Archiv für Schiffs- und Tropen-Hygiene* 17 (1913): 1-105. All references in this essay are to this extended presentation; the specific correspondence with the Mahenge station is highlighted on pgs.65-9. A subsequent abridged version was published as Otto Peiper, "Die Bekämpfung der Lepra in Deutsch-Ostafrika," *Lepra* 14 (1914): 192-250. This shorter presentation is often used in summaries by other historians. See, for example, the chapter on 'Leprosy ' in John Iliffe, *The African Poor* (Cambridge: CUP, 1987).

[17] Manuela Bauche, "Doing Research with Colonial Sources: Deconstructing Categories in German East Africa's Medical Reports," in *Sources and Methods for African History and Culture,* eds. Geert Castryck, Silke Strickrodt and Katja Werthmann (Leipzig: Leipziger Universitätsverlag, 2016), 337-9.

Fragebogen; district authorities were also sent questionnaires on issues ranging from Islam to education. The need to gather local data to inform territorial policy may be seen as a sign of a more confident colonial administration recovered from the upheaval of the 1905-07 Maji Maji rebellion. There had also been another earlier, very specific, incentive to gather leprosy data, one that originated from outside the colony. The Second International Leprosy Conference was scheduled for Bergen, Norway in 1909 and the German delegates did not want to appear totally ignorant of the situation in their colonies, or inactive in their policies, given that they had hosted the first international conference.

4. Patterns of Local Involvement

It is now time to look at the diversity of responses revealed by the 1912 exercise. Before we examine the statistical highlights, it might be useful to look at the new 'best practice' thinking laid out by Peiper. At its simplest, it was a choice between centralisation and decentralisation, with the latter becoming the new official preference. The belief was that the creation of widely distributed leper settlements throughout the colony had several advantages. They would incorporate far more individuals identified in local contexts. By binding settlements to local environments and communities, the threat of leakage would be reduced. Local settlements would also encourage practical support from

families and communities, and reduce the pressure on government budgets. Peiper had the power to institute his new ideas in the district of Kilwa. In 1909 he closed down the off-shore settlement of Noro and created five new on-shore settlements scattered throughout the district; the most distant from Kilwa was at the settlement of Madaba on the Mahenge district boundary, ten days' journey on foot from his district headquarters. Peiper himself was not an advocate of missionary involvement in the leprosy campaign and, within the confines of his district domain, it was a moot point. Kilwa was the one southern district devoid of any missionary effort at that time.[18] The neighbouring coastal district of Lindi would also change its operational policy in a nod to decentralisation but in a manner that would generally be seen as disastrous. It would also close its off-shore facilities but its new mainland location was far south in the Kionga Triangle, near the border with Mozambique. It broke one of Peiper's basic decentralisation rules by being distant from any African population settlements that could give support. Its remote distance from the Lindi district office meant that any official medical support was extremely limited. The Noro settlement had scheduled a medical visit every two months; Kionga was scheduled to get one annual visit. The demonstrable chaos of Kionga triggered the creation of a second settlement at Nahinga which, despite

[18] The Benedictine station of Kipatimu was created in the Matumbi hills in 1912 but effectively always functioned as a 'daughter' station of Dar es Salaam.

being closer to Makonde and Mwera settlements, never seemed to have the stability predicted by Peiper.

The questionnaire registered 6,633 sufferers of Hansen's disease in the colony, some 3,809 within established leper settlements and 2,824 without. It would be naïve to think these figures were comprehensive. The 'residency' areas that comprised modern Ruanda and Burundi did not report at all and neither did the neighbouring district of Bukoba. Four other districts replied that investigations were still in progress. It would also be naïve to consider that even the reported district statistics were close to complete. Comprehensive medical statistics requires self-reporting and self-reporting only tends to happen with the promise of a cure. And the initial promise of a cure for leprosy didn't begin to materialize until after the First World War.[19]

[19] There was some experimentation with variations of the drug Nastin, and some of that activity took place at 'Tabora'. However, the territorial consensus was that Nastin treatment needed a technical medical oversight that was operationally unsustainable. At 'Tabora' four inmates in the early stages of leprosy were treated with Nastin and subsequently released. That small experiment is documented in Dr Schumacher, "Zur Behandlung der Lepra mit Nastin," *Archiv für Schiffs- und Tropenhygiene*, 17 (1910): 15-17. Indeed, that territorial judgement was very soon confirmed by a rapid global abandonment of Nastin as an effective treatment. Hugo Rée, " From Turkey with Love: Deycke's Nastin Treatment of Leprosy in Queensland, 1909 to 1913," *Health & History:*

There was also a territorial skew to the reporting; more activity was reported in the South of the colony than the North. The district of Langenburg (the modern Mbeya region) dominated the geographical picture with over 43% of interned lepers within its boundary, its importance curiously 'predicted' by the ethnic analysis done by Meixner off Kilwa a decade earlier.[20] We will return to that area, but it might be interesting to consider the district that ranked second at around 20%, that of Morogoro. It has an additional interest in that it does have an indirect connection with Memel! The epidemiologist Robert Koch had arrived in German East Africa in late 1904 to look at a variety of disease issues, largely connected with cattle. In the course of those investigations, he decided to make a quick trip to Uhehe. On his return journey he made a brief detour at Morogoro to investigate a significant concentration of leprosy.[21] This was almost certainly the settlement of Harrarani in the eastern Uluguru mountains already being investigated by the district

Journal of the Australian & New Zealand Society for the History of Medicine 21, no.1 (2019): 45-63.

[20] One is very aware of the dangers of making confident assertions on the basis of these datasets. For a broader statistical context, see Sarah A. Walters, "African Population History: Contributions of Moral Demography," The *Journal of African History* 62, no.2 (2021):183-200.

[21] Robert Koch, "Vorläufige Mitteilungen über die Ergebnisse einer Forschungsreise nach Ostafrika," *Deutsche Medizin* 31, no. 47 (1905): 1865. There is no evidence that a fuller report on this diversion was ever published. The Robert Koch Institut in Berlin only has a short note from local medical staff dated 10th February 1905 attaching a sketch map showing 'probable' leprosy concentration in the southeast quadrant of the Uluguru mountains.

administration in 1904. Although delayed by the events of the Maji Maji rising, seven settlements had been established in the more populous area of the eastern Ulugurus, with four more smaller entities created further west under the supervision of the Kilosa sub-district office. Despite the Uluguru area being the main operational base for the Holy Ghost Fathers, there is no evidence that they became operationally involved. In short, Morogoro may be one of the few places that conformed closely to Peiper's 'best practice' guidelines.

Despite Peiper's reservations, Christian missionary societies started to become involved in leprosy care in the colonial period before the First World War and that involvement was often a joint enterprise with local district authorities, but it was also an engagement where the missionary societies soon took effective control of the day-to-day administration. The earliest Protestant societies in the area that was to become German East Africa were British: the Universities Mission to Central Africa (UMCA) was the first in 1869 followed by both the Church Missionary Society (CMS) and the London Missionary Society (LMS) in 1879. After the formal acquisition of the territory by Germany in 1884 a total of eight German missionary societies began to arrive in the colony. The geographical 'hotspots' of evangelical Protestant activity were two: the northern Lake Nyasa area in the

Langenburg district as well as a northern territorial strip that started at Tanga on the coast and then extended inland along the Pangani Valley to Mount Kilimanjaro. These disparate Protestant missionary groups held their first conference in Dar es Salaam in 1911 to discuss common concerns and strategies. The three Roman Catholic missionary societies (the White Fathers, the Holy Ghost Fathers and Benedictines) operated across a number of designated geographical areas (vicariates or prefectures) assigned by the *Propaganda Fide* in Rome. These Roman Catholic societies held their first territorial conference in 1912. Less than half of all the missionary societies became engaged with leprosy projects by 1912 and not all of those engaged in a significant way. The statistically significant involvement with leprosy occurs in two geographical areas. One is that northern Nyasa area identified earlier and involves the Berliner and, even more significantly, the Moravian Herrenhuter, missionary societies; that involvement effectively begins as early as 1904.[22] The second area was also based in the South, a Roman Catholic initiative

[22] See Marcia Wright, *German Missions in Tanganyika, 1891-1941: Lutherans and Moravians in the Southern Highlands* (Oxford: OUP, 1971); K. Fiedler, *Christianity and Culture. Conservative German Protestant Missionaries in Tanzania, 1900-1940* (Leiden: Brill, 1996). Unfortunately, neither of these works considers the leprosy engagement. Indeed, the medical mission in general receives sparse attention. See, instead, Bechler, *200 Jahre*, 173-177. The very earliest engagement is documented specifically in "Aussätzgeheime," *Monats-Blatt der Norddeutschen Missionsgesellschaft* (1905): 83 and "Aussätzigen-Kolonien am Nyassa," *Missionsblatt aus der Brüdergemeine* 69 (1905): 8.

illustrated by that Benedictine example described in the opening paragraph of this essay.

The initial assertion that 'Tabora' was the largest leper settlement in German East Africa now needs to be made more specific. If one were to count just the number of settlement residents afflicted with leprosy, then that statement is indeed accurate. However, if one were to include *all* residents within the boundaries of a settlement, whether ill or healthy, then 'Tabora' would drop to third place. Expressed statistically (in terms of resident lepers) the top three missionary rankings would appear thus in 1912: Herrenhuter (26.91%), Benedictine (16.64%), Berliner (16.33%). The total percentage involvement by all missionary societies was 61.07%. The district dominance of Langenburg with its ten settlements provided another variation on the decentralisation vs centralisation theme.[23] In many ways the primary geographical terrain resembled that south of Morogoro. With a few exceptions, the settlements were situated in a concentrated zone at the northern end of Lake Nyasa, never that far distant from the district headquarters or a mission station. The large settlement at Rutengano was near to the Herrenhuter station of the same name and only two hours' distance from the district headquarters. In a

[23] The official discussion is laid out in Peiper, *Lepra*, 70-84.

sense, it resembled the Mahenge-Kwiro-Tabora triangle. That proximity facilitated medical support from the district station and mission personnel. 'Tabora' had a significant female component but—in Langenburg—women were overwhelmingly in the majority in the two largest settlements and roughly equal in the third. On the offshore island of Noro, lepers had been exclusively male, serviced (occasionally) by male medical practitioners. The new gender composition of settlements (along with the inclusion of children) might suggest that female religious figures were increasingly better positioned to deal this new mixed environment.

The 1912 snapshot obviously documented a work-in-progress. There were further developments over the next two years before the chaos of the First World War refocused energies, and we are able to examine some of those within our southern sphere of attention. Within the four informal operative regions overseen by the Benedictines, three (Kwiro, Madibira, Peramiho) had participated in the initial leprosy initiative, and it was probably not completely coincidental that those three stations were headed by priests who had received basic training in tropical medicine. There were also distinct differences in initial initiatives. In the Songea district, it was the district officials who took the first step to approach Peramiho in mid-1911. A fourth centre, Ndanda, became involved slightly later and that involvement was partly in reaction to the chaotic leprosy strategy by the

Lindi district administration. When missionary priests from Ndanda paid a visit to Muhinga at the beginning of 1911 they were shocked at the conditions and the lack of care provided to residents. A petition to the district administration to transfer responsibility to the mission remained unanswered for six months. Then it was agreed. In 1913 the lepers were transferred to a site called Mwena near Ndanda; the numbers at the site initially peaked at about eighty. The missionary sisters assumed immediate medical supervision.[24]

There was also a third thread of engagement with leprosy in German East Africa that had little to do with European actors and which has probably been insufficiently acknowledged. The early leper settlement at Bagamoyo, while under the administrative control of the German administration, had a unique financial underpinning. The Ismaili merchant Sewa Haji Paroo (1851-1897) had carved out a lucrative commercial niche at Bagamoyo controlling goods and labour that flowed across the central trade route.[25] Shortly before his death he endowed a series of projects (schools, wells and a leper settlement in Bagamoyo) as well

[24] Siegfried Hertlein, *Ndanda Abbey Part I: Beginning and Development up to 1932* (St. Ottilien: EOS Verlag, 2008), 226-227. Also see Walter, *Sustained*, vol II, 285-302.

[25] A good summary of his commercial career is contained in Stephen Rockel, *Carriers of Culture: Labor on the Road in Nineteenth-Century East Africa* (Portsmouth, N.H: Heinemann, 2006), 90-2.

as the construction of the first major hospital in Dar es Salaam. He left a portfolio of property in trust to the colonial government to provide long-term funding for these projects. It was an act of pure philanthropy that did not recognize race or creed.[26] The declining economic importance of Bagamoyo, however, created a school of thought within the territorial government that argued that the merchant's financial bequest could be spent, not just within Bagamoyo itself, but also across the trading network in which he had operated, effectively envisaging a 'virtual' Bagamoyo that extended across the central swathe of the colony. This imaginative re-interpretation of the bequest would potentially create a source of funding for additional leper settlements, a source that did not impact on existing government budgets.[27]

5. The Passion Flowers: A View of a Missionary Woman

The scientific journey of leprosy interest, from Berlin to Mahenge, might be conjoined with another journey of interest that leads from Bavaria to the Kwiro mission station on the Mahenge plateau.

Before the First World War, only one German Catholic missionary order maintained a presence in Africa. The

[26] The historical role of Asian philanthropy is discussed in Robert Gregory: *The Rise and Fall of Philanthropy in East Africa*: *the Asian Contribution* (Piscataway, NJ, 1991). It is a discussion that has its limitations. It does not mention Sewa Haji Paroo.

[27] For a discussion of this interpretation see Peiper, *Lepra*, 8-11.

Benedictines of St. Ottilien were a new entity established with some difficulty in the late nineteenth century within the context of the anti-clerical *Kulturkampf* atmosphere of German politics.[28] In 1887 the *Propaganda Fide* assigned it a huge, vaguely defined area in southern East Africa known initially as the Apostolic Prefecture of South Zanzibar, its name a reflection of the ambiguous relationship between the Sultanate of Zanzibar and the German East African Company who had extracted a concession to administer the coastal strip from 1884. The Benedictines arrived to set up a station at Pugu, inland from Bagamoyo, and their work initially focussed on freed slaves. The heavy-handed activities of the chartered company touched off a coastal rebellion in 1888 in which the Benedictines were collateral victims; their station was destroyed and three of their members killed. They were forced to retreat to Germany. During 1889 and 1890 members of the missionary order gradually filtered back to a new base at Dar es Salaam; in 1891 this became the territorial capital of the new German colony of German East Africa (now Tanzania). Suffering from a prolonged leadership crisis, a chronic shortage of personnel, and endemic malaria, they were able to make little headway in the years immediately following, concentrating with limited success on freed slave

[28] For the details of the order's convoluted origins see the first volume of Frumentius Renner ed., *Der fünfarmige Leuchter*, 2 vols. (St. Ottilien: EOS Verlag, 1971).

settlements and orphanages around the capital. Only under the energetic leadership of a new Apostolic Prefect, Maurus Hartmann (1894-1902), did the Benedictines receive new life---just in time to follow on the heels of the German military as they conquered the southern interior. In rapid succession, mission stations were established at Lukuledi (1895) and Nyangao (1896) in the Lindi hinterland; Tosamaganga (1897) and Madibira (1897) in the Southern Highlands; and Peramiho (1898) and Kigonsera (1898) among the Ngoni polities of the southwest. The mission station at Kwiro in the Mahenge Highlands, re-established in 1902, was the last of these pioneer regional 'mother' stations. The Benedictines had initially arrived in East Africa with one priest, five lay brothers and four sisters. By late 1913 that had risen to 23 priests, 39 lay brothers and 56 sisters.[29]

The metropolitan confinement to one German base at St. Ottilien in Bavaria, and to a restricted initial activity on the coast, helped to disguise the reality that the 'Benedictines' actually consisted of two distinct organizations based on gender. This perception started to change shortly after the initial burst of territorial expansion in East African interior. One of the first nuns at Lukuledi, Sister Birgitta Korff, was

[29] The best overview of this initial period see Frumentius Renner, "Die Benediktinermission in Ostafrika," in *Der funfärmige Leuchter, Beiträge zum Werden und Wirken der Benediktinerkongregation von St. Ottilien*, ed. Frumentius Renner (St. Ottilien: EOS, 1992),13-118. One might also consult Sebastian Napachihi, *The Relationship between the German Missionaries from St. Ottilien and the German Colonial Authorities in Tanzania 1887-1907* (Ndanda: Benedictine Publications, 1998).

pulled back to Germany to take up the new post of Prioress General, an act that in itself started to more formally differentiate the roles of the male and female religious at St. Ottilien. This was followed in 1902 by a decision to geographically relocate the sisters to the Bavarian lakeside town of Tutzing, a task that had been completed by the beginning of 1904. Tutzing began to consider requests for its female personnel from Roman Catholic organizations other than St. Ottilien. In 1903 it sent its first contingent to Brazil, in 1906 to the Philippines. A growing sense of their own distinct identity also led to the publication of a history in 1905 (updated in 1921) that detailed their initial work in Africa and then in other parts of the world.[30] In some sense, one can see the Tutzing sisters as 'contractors', comparable to the many male overseers that worked in the large corporate plantations around Lindi or up the Pangani Valley.

It is also necessary to construct a broad overview of the developing operational strategy of the Benedictines in German East Africa. There had to be an acceptance early on

[30] *Passionsblumen aus dem fernen Süden: kurze Darstellung der Arbeiten, Leiden und Erfolge der St. Benediktus-Missions-Schwestern in Deutsch-Ostafrika* (Tutzing, 1905). A later edition in 1921 covered a more global reach. *Passionsblumen und Pfingstblüten in dem Wirken der Missionsbenediktinerinnen von Tutzing* (Tutzing, 1921). For more recent internal scholarship see Bernita Walter, *Sustained by God's Faithfulness: The Missionary Benedictine Sisters of Tutzing*, 2 vol. (St. Ottilien: EOS, 1985 and 1992).

that there would be no immediate large-scale conversion of the adult population. The primary emphasis then switched to the vehicle of the 'bush' school to build a Christian population from the bottom up starting with the youth. It was a long-term strategy, but in the short-term it was held back by the wait for trained African catechist/teachers to materialize and, in the medium term, by the need for more priests who could create 'daughter' stations that would begin the process again. This was a demand for 'male' personnel. Benedictine literature might speak of hospitals and leper settlements as the means for influencing adults and saving the souls of those in danger of death – yet, typically, it was a more practical reason which motivated the initial application of the Father Superior at Kwiro in 1909; he wanted to protect his expanding school network from contact with the disease.[31]

The arrival of Bishop Thomas Spreiter in the colony in 1907, however, contributed to a re-thinking of various approaches to the missionary effort. He was an initial advocate of the increased involvement of the female contingent of his organization, seeing them as the tools that would interface with the adult female African population and do so particularly at the pivotal ceremonies of birth, puberty and marriage. His thinking did not take place in a vacuum. He was aware of the historical efforts of the UMCA, including their extreme reluctance to involve female personnel until a

[31] Fuchs to Mahenge Station. 29 April 1909. MD1/7.

very late date.[32] Within several years Spreiter would come to admit that he had been overly-optimistic in his considered role for women; that it was no simpler for nuns to interface with adults than it had been for his male priests. This left Roman Catholic sisters with limited options. They could teach female students at the mission station; they could even try (not entirely successfully) to maintain a 'cloistered' *Internat* for young women awaiting marriage to Christian spouses. However, attention repeatedly returned to the exercise of a medical mission administered from a fixed base. The leper experiments substantially helped to enable this trend.

There was another trend of mission interaction with an adult African population that did tie very specifically to the leper settlements and was particularly marked in the early years of the 'Tabora' settlement. Individuals in the advanced stages of leprosy, usually physically disconnected from their family, were obvious candidates for inclusion in the Roman Catholic

[32] The UMCA environment is described Terence Ranger, "Godly Medicine: The Ambiguities of Medical Mission in Southeastern Tanzania," in *The Social Basis of Health and Healing in Africa*, eds. Steven Feierman and John M. Janzen (Berkeley, Los Angeles & Oxford: University of California Press, 1992), 25-84. This had initially appeared in *Social Science & Medicine. Part B: Medical Anthropology* 15, no.3 (1981): 261-77. It can be usefully paired with a recent treatment of UMCA medicine in a more extended geographical area. Charles M. Good. *The Steamer Parish: The Rise and Fall of Missionary Medicine on an African Frontier* (Chicago: University of Chicago Press, 2006).

Christian community at the moment of death, *in periculo mortis*, and this was a rite that did not need a priest present; it could be (and often was) administered by a sister.[33]

6. A Wider Definition of Medical Attention

The focus on leper settlements may be somewhat restrictive unless we consider the wider perspective of the emerging acceptance of Western biomedicine by an African population. It might be useful to return to the Kwiro mission station. In the year before the creation of 'Tabora'—in the absence of any missionary sisters—the mission station had spent just 22 rupies on dispensed medicine. This changed dramatically after 1909. In 1913 there were 3,940 house visits made by the sisters to offer medical assistance. In the course of those visits 10,317 treatments were made (bandaging, teeth-pulling, etc.) as well as 6,183 issuances of medicine.[34] Even if one factors in the activity within the leper settlements, this is still a significant medical interaction with the local Pogoro population surrounding the Kwiro mission,

[33] The linkage between leper settlements and Christian conversion is key to Manton's studies of Irish Catholic missionaries in Nigeria. See in particular John Manton, "Global and Local Contexts: the Northern Ogoja Leprosy Scheme, Nigeria, 1945-1960," *História, Ciências, Saúde-Manguinhos* 10 (2003): 209-23; "Administering Leprosy Control in Ogoja Province, Nigeria, 1945–67: A Case Study in Government–Mission Relations," *Clio Medica/The Wellcome Series in the History of Medicine* 80, no.1 (2006): 307-31.

[34] "Statistik betr.Krankenfürsorge in Kipatimu, Kwiro u. Ifakara". Appendix to Szczypior, "Arbeit".

one that was conducted on a peripatetic basis rather than a service offered from a central location. If one were to consider Peramiho in the Songea district, where missionary sisters arrived in 1901, then that peripatetic pattern was already evident quite early. In that particular location, there was the presence of a missionary sister who had worked in a nursing capacity in Dar es Salaam since 1891 and had subsequently had further training in a German hospital between 1898 and 1900. There was a similar nursing presence in the new station established at Ndanda in the Lindi hinterland in 1907, again with a peripatetic regime.

It may also be instructive to look at several other contemporary examples that are not mission-centred. In 1909 a German woman arrived in Lindi to join her husband who was a contract overseer on a plantation near Lindi. They had planned a two-stage hunting trip that was to encompass the northern and southern borders of the Lindi district. Margarethe von Eckenbrecher was a teacher, a published diarist and a veteran of another German colony in Africa. Just before the trip she had engaged in an intensive course in practical tropical medicine. The first stage of her trip traversed the Mbwemkuru River that served as the effective physical boundary between the Kilwa and Lindi districts. This was not an established commercial route and it appears to have had little touring attention from the staff of either the Lindi or Kilwa district administrations. Certainly, no

European woman had ever travelled in this area before. As she headed westward towards the Mahenge district boundary she began to minister to the occasional medical needs of their porters. Almost immediately, the news of a female *mganga* began to spread along her route and she was besieged for days by those seeking medicine, the majority of the supplicants were women and their children.[35] It was actually not the first time von Eckenbrecher had encountered a female demand for medicine! On her arrival in Lindi she was temporarily housed in a ward of the local hospital because of a shortage of hotel space in town. On the following morning she was awakened by a loud clamour. Her enquiry elicited the response that "... six hundred native women had already gathered for the purpose of obtaining a vaccination, since smallpox was having a strong impact on the natives of Lindi." [36] Sadly, we know little else about this intriguing event. But the demand for smallpox vaccinations tied into a local public consciousness; a major smallpox epidemic had ripped through the South almost a decade earlier and triggered a massive emergency response. The re-appearance of smallpox in 1909 initiated a more territorial initiative; some 400,000 additional people are said to have been vaccinated in that year, about 10% of the total

[35] Margarethe von Eckenbrecher, *Im dichten Pori: Reise- und Jagdbilder aus Deutsch-Ostafrika* (Berlin: Ernst Siegfried Muller, 1912), 64-86.
[36] Von Eckenbrecher, *Pori*, 26. Yet another health scare emerged in Lindi town several weeks later. An individual died of the plague (*Pest*), and infected rats were identified. As a result, increased regulatory measures were enforced on shipping arriving and departing from the port.

population.[37] Indeed, the ubiquitous Dr Otto Peiper was engaged in a major smallpox vaccination tour in 1909 along the northern boundaries of the Kilwa district, close to the time when Margarethe von Eckenbrecher was travelling along the southern boundary.[38] His Lindi counterpart was engaged in a parallel operation at the same time, presumably along the Lukuledi valley.[39]

And leprosy does specifically figure in the observations of this female traveller. As she sailed up the Lukuledi on the Ruvuma leg of her trip she passed the recently abandoned leper settlement at Kisiwa. But she also observes "several hundred" leprosy sufferers being transferred on *dhaus* from the interior. This suggests a much more complex operation unfolding in 1909 than a simple transfer from Kisiwa to Kionga. It indicates a second temporary island settlement that was being fed by a renewed district initiative to flush

[37] "Pocken-Bekämpfung in Deutsch-Ostafrika," *Deutsch-Ostafrikanische Zeitung* 27, no. 22 (1910), 361.

[38] Otto Peiper, "Über Säuglingssterblichkeit und Säuglingsernährung im Bezirke Kilwa Deutsch-Ostafrika," *Archiv für Schiffs- und Tropenygiene* 14 (1910): 233–59. This is arguably the first major study of infant mortality in Tanzania.

[39] "Gesundsverhältnisse in den Bezirken Kilwa und Lindi," *Deutsch-Ostafrikanische Rundschau* 3, no. 9 (1910). On the same page as this article, there is a separate reference to 7,000 people being vaccinated for smallpox on the border of the Mwanza and Tabora districts.

out leprosy sufferers from across the district.[40] And this was taking place at almost the exact time that the 'Tabora' settlement was being initiated. Von Eckenbrecher mused on what she saw and fused it with other conversations she had on her trip.[41]

> There is much leprosy in East Africa. The *jumbe* or *akida* of every location has the responsibility to produce all of their leprosy sufferers for the purposes of isolation and treatment by the government. This action will reduce the expansion of infection. The natives strenuously resist such measures; they seek to disguise their illness as long as possible and to hide any sufferers.

Within days von Eckenbrecker came to terms with leprosy on a personal level. As her Swahili comprehension increased, she eventually became aware that her personal cook was a leper in remission. He was dismissed, sent to Lindi, where it is highly probable, he was transported southwards to Kionga.

7. The Philanthropic Effect: A Global Context

In 1914 a pamphlet entitled *Sorgenkinder*, written by the most senior Benedictine cleric, was published in

[40] The renewed leper identification initiative may well have been facilitated by the smallpox vaccination tours undertaken in both Kilwa and Lindi districts in 1909.

[41] Von Eckenbrecher, *Pori*, 131

St.Ottilien.[42] A second edition appeared in 1918 and yet a third in 1922. It was a treatise on the three earliest leper settlements in which the missionary order had been involved in East Africa. It bears examining from a variety of perspectives. First, it was obviously part of an extensive publicity portfolio that existed to extract funding from the Roman Catholic faithful of (primarily) Bavaria. Indeed, the front and back covers of the pamphlet provide a comprehensive listing of all the periodic and occasional items of that portfolio. Only one earlier pamphlet seems to deal explicitly with East Africa and that is a best-selling, harrowing account of death and destruction within the early mission environment![43] In short, death, destruction and disease are universal topics for stirring charitable impulses.[44]

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[42] Norbert Weber, *Sorgenkinder: Rundgang durch die Aussätzigendörfer im Süden von Ostafrika* (St.Ottilien: Missionsverlag, 1914). This sits as the eighth publication in the *Im Kampf fürs Kreuz* series.

[43] Linus Leberle, *Martyrerblut ist der beste Same für neues Christentum. Ein Gedenkblatt an die Ermordung der Benediktinermissionäre von St. Ottilien in Ostafrika, an die wiederholte Vernichtung und das wiederholte herrliche Aufblühen der dortigen Mission der Benediktiner.*(St. Ottilien: Missionsverlag, 1913). This sits as the seventh publication in the pamphlet series. It was to be repeatedly published through to 1930.

[44] Outside of the Benedictine environment, the German-language periodical *Gott will es!* seemed to specialize in 'shock' stories (famine, epidemics, and locusts) from the mission environment. It was utilized by all the East African Roman Catholic missionary societies, not just the Benedictines. For a wider contextual discussion see Richard Hölzl," 'Mitleid' über große Distanz: Zur Fabikation globaler Gefühle in Medien der katholischen Mission, 1890-1940," in *Mission global? Eine*

The pamphlet is constructed as a connected journey across the East African landscape. Since the author himself never made such a journey in the timeframe indicated, it suggests a reconstruction from published and archival sources. The shaping of a story around suffering children could not have been realized without the drastic organizational changes in the leprosy model that had been made in East Africa in the years just leading up to 1914.

The narrative journey shares certain specific observations that have either local or global relevance. In the leper settlement near Peramiho, the traveller notes that hoes have been obtained for the lepers from local Matengo ironsmiths, but immediately follows up with a comment on how that will impact the local mission budget. In the Mahenge Highlands the importance of acquiring souls for Christianity is again emphasized, indeed it is specifically quantified. It is suggested that of the first 300 lepers to die at 'Tabora', some 172 individuals had accepted Christian last rites. The same location is used to highlight the fact that the papal authorities made the first donation to fund the construction of the leper chapel. The author would also throw out the name of an author ('Stoddard') and a place ('Molokai') and assume his audience would know the wider context, that he was talking about a Belgian missionary priest who died of

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Verflechtungsgeschichte seit dem 19. Jahrhundert, eds. Rebekka Habermas und Richard Hölzl, (Cologne: Böhlau, 2014), 265-94.

leprosy on an island in the Hawaiian complex.[45] The global references can be seen in conjunction with a decision in 1922 to produce an English version of this pamphlet.[46] The additional use of the English medium might obviously be seen in the contemporary struggle of the German Benedictines to re-establish their physical presence in their previous territory in East Africa, a territory now controlled by the British. It might also be seen in the context of the scattering of Benedictine personnel into a wider South African context. But there is probably a more specific reason. In 1921 Archabbot Norbert Weber launched a major fundraising initiative in the United States. His initial emissary was P. Michael Heinlein, a priest who, from 1912, had acquired his initial East African experience at Kwiro in the Mahenge Highlands. He was soon joined in that

[45] The reference (and embedded quotation) almost certainly refers to Charles Warren Stoddard, *The Lepers of Molokai* (Notre Dame, Ind.: Ave Maria Press, 1886). American audiences might have been even more familiar with a more concise (and later) pamphlet by the same author. Charles Warren Stoddard, *Father Damian: the martyr of Molokai* (San Francisco: Catholic Truth Society, 1901). German discussions of this same location and individual would already be appearing as early as 1892. The global 'Damien effect' is discussed in the last chapter of Rod Edmond, *Leprosy and Empire: A Medical and Cultural History* (Cambridge: Cambridge University Press, 2006).

[46] Nobert Weber, *The Children of Sorrow:A Walk through the Leper Stricken Villages in Southern East Africa* (St. Ottilien: Missionsverlag, 1922). The proposed publication date must be seen in the wider context of four other existing pamphlets being translated into English in 1922.

endeavour by Bishop Thomas Spreiter, now operating from a base in Natal. One of the concrete outcomes of their American initiative was the establishment of a Benedictine presence at Newton, New Jersey in 1924.[47]

One might return to the pamphlets concerned for one last observation. The advertising content on the sleeves of *Sorgenkinder* emphasizes the role of "heroic Sisters". Yet the internal textual narrative is carried by a senior male missionary figure who on occasions overrules the actions of local female missionaries. This is visually reinforced by the cover artwork that shows a patriarchal figure bestowing blessing on a group of (oddly adult) supplicants set against the palm trees of a coastal landscape. The translated content of *The Children of Sorrow* remains true to the original but the cover artwork has been substantially changed. It now shows the figure of a single female nun crouching protectively over a single child. The background to that scene is now evocative of the Mahenge Highlands. The year 1922 is also a convenient trigger point for additional scholarship, as well continuing our localized discussion of leprosy. [48]

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[47] Maximin Mayr, "St. Paul's Abbey in Newton, New Jersey/USA," *Der fünfarmige Leuchter* II, 110-115.

[48] John Iliffe uses it as the effective start of his examination of African medical personnel in East Africa. John Iliffe, *East African Doctors* (Cambridge: Cambridge University Press, 1998). The same is true for an extensive outsider analysis of the Benedictine environment. Christine Eggers, *Transnationale Biographen: Die Missionsbenediktiner von St.Ottilien in Tanganyika 1922-1965* (Cologne: Böhlau Verlag, 2016). This is

8. What Happened Next

That proposed connection over time can be briefly examined in a variety of retrospective views that might start with the three initial leper settlements established by the Benedictines. In 1998 the Benedictine sisters at Peramiho issued an annual medical report, slightly extended to transform it into a centennial issue.[49] Within that report, the leper settlement still existed at Lunduzi/Morogoro, now extended and adapted to incorporate those afflicted with AIDS and tuberculous. However, the bulk of the centennial report succinctly describes the contemporary existence of a massive and sophisticated medical network that stretched from centralized hospital facilities to decentralized dispensaries spread over a wide geographical area. Whereas Bishop Spreiter might have subtly used the leper experiments to appeal to an audience of German-speaking

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synthesized in Christine Egger "The importance of difference in the making of transnationality: biographies and networks of the Benedictine mission in Tanganyika (1922–65)," *European Review of History: Revue européenne d'histoire* (2018) 25 no.3-4: 450-71.

[49] *St. Joseph's Mission Hospital Peramiho: 100 Years Peramiho Mission 1898-1998*. (Peramiho: Benedictine, 2019). A specific view of the local demographic impact in the immediate post-war period is contained in Eginald P. Mihanjo, "Reconstructing Causes of Death in Songea District in Songea District, Tanzania during the Early Colonial Period: Peramiho Parish Register 1900-1925," *Tanzanian Journal of Population Studies and Development* 8, nos.1/2 (2001): 70-83. Mihanjo does not use any wider German sources for his leprosy comments. He relies on Kurt Baslev, *A History of Leprosy in Tanzania* (Nairobi: AMREF, 1989).

donors, a century later those international connections are additionally extended to a wide range of specialized NGOs and international agencies. Yet another centennial publication appeared in 2019 to celebrate the activities of the Italian Consolatas in the Southern Highlands.[50] The section that details the advent of the Consolata sisters immediately launches into a lengthy discussion of the abandoned leper settlement at Madibira, and its centrality to the renewed Consolata medical effort in the 1920s. There exists no similar centennial account of what used to be the Mahenge *Militärbezirk*, yet we do have an academic study that intimately documents the re-connection of Swiss Consolata sisters to the site that opened our discussion. In 1922, a contingent of Swiss missionaries disembarked from a train at Kilosa ready for a 14-day southward journey on foot that would terminate at Kwiro. Among them was Sister Innozenz Hürlimann, who had just spent a year in the Roman Catholic medical facilities in Dar es Salaam. When Margarete von Eckenbrecher made her 1909 trip, she never anticipated the demand for her medical services. The Swiss sister does anticipate and packs her medical gear accordingly. On the night of their first camp, they are swamped with medical supplicants and that picture is replicated throughout their entire journey. Soon after her arrival at Kwiro, she was

[50] Francesco Bernardi, *Like the Baobab: Wamisionari wa Consolata Tanzania, 1919-2019* (Dar es Salaam: Consolata Procura, 2019). The summary is derived from Alessandro di Martino, *Carteggio di un prestito per il Regno, 1919-1935 Tanganyika*, (Turin:Edizioni Missioni Consolata, 1987).

presented by the local administration with formal responsibility for 'Tabora' and she was to retain that position for the next eight years.[51] The material support for the 'Tabora' settlement by both civil and missionary participants would subsequently decline during the Depression and the Second World War. By around 1948 the institution had virtually ceased to exist, leaving a few stone buildings to commemorate its origins.[52] The deterioration of support at that site was paralleled by a shift of the Swiss missionary medical efforts off the Mahenge plateau down to the commercial centre at Ifakara on the Kilombero river, a site consistently considered by the British (and German) administration to be too 'unhealthy' for European habitation. The extensive medical (and research) facilities that emerged

[51] Edgar Widmer, *Zur Geschichte der schweizerischen ärtzlichen Mission in Africa unter besonderer Berüchsicthtigung des medizinischen Zentrums von Ifakara, Tanganyika* (Basel: Benno Schwabe, 1963), 30-32.

[52] This shift in material circumstances is documented in Marcel Dreier, *Health, Welfare and Development in Rural Africa: Catholic Medical Mission and the Configuration of Development in Ulanga/Tanzania, 1920-1970* (Basel: Bommer, 2019) 48-56, 185-92. The leprosy developments are also considered within his specific wider discussion of the female missionary practitioner. Marcel Dreier, "'Wer möchte da nicht krank sein in den sorglichen Armen von Schwester M...': Schweizer Ordensschwestern und der Wandel von Fürsorge- und Pflegeidealen in Ostafrika 1920-1990 " in *Geschichte der Pflege - Der Blick über die Grenze*, eds. Vlastimil Kozon, Elisabeth Seidl and Ilsemarie Walter (Vienna: ÖGVP, 2011), 203-25. Also see Marcel Dreier, " 'Europäisch gebären'. Katholische Mission, Mutterschaft und Moderne im ländlichen Tansania1930-1960," in *Der Schwarze Körper*, 153-74.

at Ifakara attracted substantial academic and philanthropic investment from Switzerland in a similar way that the Benedictines exploited their metropolitan German connections. [53] The Ifakara site would eventually spawn a new leprosy treatment centre in the 1950s linked to the existence of modern drug treatments.

The settlement at Mwena near Ndanda had been the last Benedictine leprosy initiative during the German period. Receiving some government support as late as 1915, it was arguably the site most impacted by the conflict and privations of the war. By 1918 it had virtually ceased to exist. As the Benedictines began to rebuild their infrastucture, the effort at Mwena also began to revive. Three Benedictine sisters would provide continuous oversight between 1927 and 2000. The resident numbers would grow from 49 (1927) to 651 (1950). However, there was an additional organizational resource at Ndanda that was unique. Sister Thekla Stinnesbeck was the first qualified medical doctor to operate within the Benedictine jurisdiction and was to do so continuously between 1926 and 1959. The combination of her medical qualifications and her longevity provided the ideal ethical and operational environment for the application of curative experimentation to supplement the palliative care offered by the other sisters. And as such she established an

[53] To Dreier's work cited above, one can add Lukas Meier, *Swiss Science, African Decolonization and the Rise of Global Health, 1940-2000*. (Basel: Benno Schwabe, 2014). This work makes no reference to leprosy.

internationally-recognized scientific recognition for leprosy care at Mwena.[54]

The silent gap in our retrospective is that Nyasa corridor that so dominated the 1912 survey. In 1926 a conference of German evangelical missionary societies decided to initiate another survey of the medical mission, a task last done in 1914. The resulting work devotes little more than a sentence to the Nyasa region, a suggestion that a 'nursing station' was established near Isoko in the later 1920s to deal with the renewed care of lepers.[55] At the beginning of the Second World War, the German evangelical component would effectively disappear from the colony.

As a territorial infrastructure was rebuilt in the 1920s, and then battered by the Depression and yet another global war, it was often the presence of the medical component that provided the important re-instituted contact between an African population and European missionaries. On a broader scale, the missionary medical infrastructure started to form a greater importance than anything provided by the nascent British colonial administration, and indeed the immediate

[54] Siegfried Hertlein, *Ndanda Abbey Part II: The Church Takes Root in Difficult Times 1932-1952* (St.Ottilien: EOS Verlag, 2011), 248-52.
[55] *Die Deutsche Evangelische Àrztliche Mission nach dem Stande des Jahres des Jahres 1928*. (Stuttgart: Evang. Missionsverlag, 1928), 121.

post-independence government. [56] And that expanded structure would continue to make room for leprosy. The figure of Dr Leader Stirling, Tanzania's first minister of health, somewhat illustrates many of the structural changes and continuities. He arrived in southern Tanganyika to work as a doctor for the UMCA in 1935. Converting to Catholicism in 1949, he would subsequently construct a massive medical infrastructure for the Benedictines at Mwena. At the age of ninety, he would write a small appreciation of his considered Tanzanian medical heroes.[57] Two of them (Edith Shelley and Robin Lamburn) would be specialists in leprosy care.

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[56] The later development of the medical infrastructure in the South is complex and is addressed in considerable detail by other scholars. See, for example, Michael Jennings, " 'Healing of Bodies, Salvation of Souls': Missionary Medicine in Colonial Tanganyika," *Journal of Religion in Africa* 38, no 1 (2008): 27-56; *Idem*, "A Matter of Vital Importance: The Place of Medical Mission in Maternal and Child Healthcare in Tanganyika, 1919-1939", in *Healing Bodies, Saving Souls: Medical Missions in Asia and Africa* ed. David Hardiman (Amsterdam & New York: Clio Medica, 2006), 227-50. Southeast Tanzania specifically is covered in the work of Bruchhausen, for example, Walter Bruchhausen, *Medizin zwischen den Welten: Geschichte und Gegenwart des medizinischen Pluralismus im südöstlichen Tansania.* (Göttingen: Vandenhoeck & Ruprecht, 2006); a useful overview is contained in his "Medicine between religious worlds: The Mission hospitals of South-East Tanzania during the twentieth century," in *From Western Medicine to Global Medicine: The Hospital Beyond the West*, eds. Mark Harrison, Margaret Jones and Helen Sweet (New Delhi: Orient Black Swan, 2009), 172-97.

[57] Leader Stirling, *Heroes of the Faith in Tanzania: Seven Witnesses from the Central African Mission 1880-1993.* (Ndanda/Peramiho: Benedictine Publications, 1997). The fact that Stirling's leprosy heroes sit in the UMCA environment should remind us of still relatively undeveloped research areas!

The 1891 Battle of Lugalo: An Initial Archaeological Investigation of the Hehe-German Battlefields in Iringa, Tanzania

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Abstract

The 1891 battle of Lugalo in Tanzania is one of the many the Germans faced against the local people in their endeavour to impose colonial rule. The Hehe warriors under chief Mkwawa, mostly equipped with spears and shields, defeated the German forces with superior weaponry. The aftermath was bloody and costly based on the number of causalities sustained by both parties. Until recently, the battlefield has received no attention from archaeologists. This article presents results of the first archaeological survey. The battlefield is full of bullet cartridges linked to the fight. Over a dozen bullet cartridges were recovered. The assemblage provides an opportunity to broaden the understanding of the military engagement, and to clarify, validate, and reconcile the historical and oral accounts. The Mauser rifle, which so often gave military triumphs in Europeans' warfare against Africans, was the main firearm used by the German forces. The interpretation is supported by a large number of fired Mauser cartridges. The paper also provides recommendations and directions for future research.

Keywords: Mkwawa, Lugalo, Bullet Cartridges, Germany, Tanzania, Battlefield Archaeology.

1. Introduction

Tanzania has copious isolated primary and ethnic-based anti-colonial resistances and military encounters that involved the exchange of fire.[1] The 1891 battle of Lugalo in Iringa cannot be easily isolated from the Tanzanian historiography of war (Figure 1). Unfortunately, for a long time, it has not received attention from archaeologists. There is also very little information about the archaeology of other Hehe-German battlefields in the Iringa.[2] Partly, the battle of Lugalo is overshadowed by the iconic battles of the Maji-Maji war (1905-1907) against the Germans which, under the traditional healer Kinjekitile Ngwale, swept several regions of southeastern Tanzania.[3] Besides, the lack of military historians, interests amongst archaeologists, and funding have also grossly inhibited research on anticolonial battlefields. This work employs approaches from conflict

[1] See Isaria Kimambo and Arnold Temu, eds., *A History of Tanzania* (Nairobi: East African Publishing House, 1969); John Iliffe, *A Modern History of Tanganyika* (Cambridge: Cambridge University Press, 1979).

[2] Pamela Willoughby et al., "A German Rifle Casing and Chief Mkwawa of the Wahehe: The Colonial and Post-colonial Significance of Mlambalasi Rockshelter, Iringa Region, Tanzania," *Journal of African Archaeology* 17, no. 1 (2019): 1-13; Jenipher Miller, et al., "Fourteen Years of Archaeological and Heritage Research in the Iringa Region, Tanzania." *African Archaeological Review* 37 (2020): 271-292.

[3] Gilbert Gwasa and John Iliffe, eds., *Records of the Maji Maji Rising* (Nairobi: East African Publishing House, 1967); James Giblin and Jamie Monson, eds., *Maji Maji: Lifting the Fog of War* (Boston: Brill, 2010).

archaeology to examine the battlefield of Lugalo and to offer a new reflection and dimension on the early anti-colonial wars.

Conflict archaeology is a vibrant area of investigation and has advanced steadily in the last three decades.[4] The primary attention of the novel field has been on the studies of the ancient and historic battlefields.[5] While substantial progress has been achieved by historians to highlight the weaknesses of the primary and ethnic-based anticolonial resistances[6], our understanding of the African warriors' military expertise and tactical plans to resist colonial rule from an archaeological perspective remain impoverished. The majority of the anticolonial battlefields in Africa have not yet benefitted from archaeological studies. According to Douglass Scott there are behavioural connections between

[4] For details on developments of conflict archaeology see Douglas Scott and Andrew McFeaters, "The archaeology of Historic Battlefields: A History and Theoretical Development in Conflict Archaeology." *Journal of Archaeological Research* 19 (2011): 103-132.

[5] See Phil Freeman and Tony Pollard, eds., *Fields of Conflict: Progress and Prospect in Battlefield Archaeology* (Oxford: Archaeopress, 2001); John Schofield, *Combat Archaeology: Material Culture and Modern Conflict* (London: Duckworth, 2005); Tim Lynch and Jon Cooksey, *Battlefield Archaeology* (Stroud: Tempus Publishing, 2007); Tony Pollard and Iain Banks, eds., *Scorched Earth: Studies in the Archaeology of Conflict* (Leiden: Brill, 2008).

[6] Adu Boahen, ed., *General History of Africa: Africa under Colonial Domination 1880-1935* (London: Heinemann Educational Books, 1985).

"historical events [battles]" and the "physical remains of the events [artefacts]" recovered from the battlefields[7]. Artefacts from battlefields are the by-products of human conflicts and behaviours left by the participants in their ultimate context of discard. Battlefield archaeology offers a new way to understand the behavioural aspects of African warriors, including fighting organization, tactics, and the succession of events during the fights based on spatial distribution of recovered battle-related artefacts.[8] It can be also used to appraise the accuracy and/or strengthen interpretations drawn from historical and oral accounts.

Battlefield archaeology in Tanzania is a relatively new area of study. Nevertheless, there is a growing number of works that anecdotally touch on ethnographic objects, restitution of atrophied skulls, and archaeological aspects of some

[7] Douglas Scott, *A Sharp Little Affair: The Archeology of the Big Hole Battlefield* (Nebraska: J & L Reprint Company, 2009), 2,4.

[8] For details on how archaeology can provide new perspectives on battlefields see Richard Fox and Douglas Scott, "The Post-civil Battlefield Pattern: An Example from the Custer Battlefield", *Historical Archaeology* 25, no. 2 (1991): 92-103; Douglas Scott, *Uncovering History: Archaeological Investigations at the Little Bighorn* (Norman: Univ. of Oklahoma Press, 2013); Douglas Scott, et al., *Archaeological Perspectives on the Battle of the Little Bighorn* (Oklahoma: Univiversity of Oklahoma Press, 1989); Peter Bleed and Douglas Scott, "Archaeological Interpretation of the Frontier Battle at Mud Springs, Nebraska." *Great Plains Research* 19, (2009), 13-25; Eric Sivilich and Daniel Sivilich, "Surveying, statistics, and spatial mapping: KOCOA landscape analysis of eighteenth-century artillery placements at Monmouth Battlefield State Park, New Jersey", in *Historical Archaeology* 49 (2) (2015), 50-71.

battlefields, mainly the Maji-Maji rebellion battles[9]. Enthused by the recovery of battle-related artefacts from Kalenga and Mlambalasi rock shelter, the author in 2018 launched an ongoing project: *The Archaeology of the German-Hehe Battlefields in Iringa Region* based at the University of Dar es Salaam. The main objective is to search for archaeological traces of the military engagements and interpret their spatial distribution over the landscape to understand how the battles unfolded.

2. The Battle of Lugalo

The Hehe Empire of the Iringa Region was a militarized political unit under a formidable paramount chief Mkwawa

[9] Notable works in Tanzania include Nancy Rushohora, "Desperate Mourning and Atrophied Representation: A Tale of Two Skulls." *African Historical Review* 51, no.1 (2019): 25-45; Paola Ivanov and Kristin Weber-Sinn, "Collecting mania and violence: objects from colonial wars in the depot of the ethnologische museum, Berlin," in *Humbolt Lab Tanzania,* eds. Lili Reyels, Paola Ivanov and Kristin Weber-Sinn (Berlin: Dietrich Reimer Verlag GmbH, 2018), 66-149; Oswald Masebo, "Objects of resistance against German colony in southeast Tanzania, 1890-1907," in *Humbolt Lab Tanzania,* eds. Lili Reyels, Paola Ivanov and Kristin Weber-Sinn (Berlin: Dietrich Reimer Verlag GmbH, 2018), 222-265; Willoughby, et al., 2019; Bettina Brockmeyer, Frank Edward and Holger Stoecker, "The Mkwawa Complex: a Tanzanian-European History about Provenance, Restitution, and Politics," *Journal of Modern European History* 18, no. 2 (2020): 117-139; Jeremiah Garsha, "The head of chief Mkwawa and the transnational history of colonial violence, 1898-2019" (University of Cambridge, PhD thesis, 2020).

(1855-1898). The Hehe conquered most of the nearby chiefdoms and were the undisputed masters of the southern highlands by 1890.[10] The Hehe also expanded their empire and power towards the north and the coast after further south expansion barricaded by the Ngoni, Sangu, and Kinamanga resistances by the mid-1880s. After the Germans thrashed the coastal rebellions in 1888 led by Abushiri, they began to move further inland. The central caravan route stretching from Ujiji on Lake Tanganyika to Dar es Salaam on the coast was the main artery of the colony and a catalyst to an economically lucrative interior. However, the Hehe frequently raided the caravans, attacked Tanzanians who submitted to the Germans, and devastated the areas around Kilosa. The danger to the caravan was severe during the 1880s and early 1890s and was practically closed[11]. The Germans worried about the vast Hehe Empire, as was the major blockage to the rewarding economic trade with the interior, obstructed penetration along the central caravan route, and control of the territory. They also feared the pugnacious Hehe might attack the coast, and Mkwawa was a serious threat to the security of the colony[12]. The only

[10]Alison Redmayne, "Mkwawa and the Hehe Wars." *Journal of African History* 9, no. 3 (1968): 409-36; David Pizzo, "To devour the Land of Mkwawa: Colonial Violence and the German-Hehe War in East Africa c. 1884-1914" (University of North Carolina, Chapel Hill, PhD diss., 2007).

[11] Rochus Schmidt, *Der Araber-Aufstand: Seine Ursachen und Folgezustände* (Frankfurt: Sigfried Verlag, 1893), 305; Redmayne, 412, 417; Iliffe, 106.

[12] Wilhelm Arning, "Die Wahehe (Schluβ)," in *Mittheilungen von Forschungsreisenden und Gelehrten aus den deutschen Schutzgebieten*, ed.

inescapable option for the Germans was to conquer the Hehe Empire to restore order on the caravan route.

Between 1891 and 1898, the Hehe were engaged in a war against the Germans. On August 17th, 1891, from around 7 am, Lugalo village located 22 km east of Iringa town, witnessed a fierce armed clash between the invading Germans with about 400 mercenaries (14 German officers, 362 *askaris* [recruited African soldiers], and 200 porters) with modern weapons marching in a long column under commander Emil von Zelewski (1854-1891) and the Hehe with about 3,000 warriors under chief Mkwawa (1855-1898). A dense forest and tall grasses covered the Lugalo landscape at the battle time and it was impossible to see further than 4 m into the bush. The Hehe warriors hid 30 to 50 m on either side along the old track running to Iringa, and some took position behind large rocks with spears in their hands and elegantly executed the ambush on the Germans from the flanks. Most of the German column was dead within ten minutes, including von Zelewski.[13] The majority of the Germans could not even load their rifles, and only a few fired

Dr. Freiherr von Danckelmann, vol. 10 (1897): 53-54; Ernst Nigmann, *Die Wahehe: Ihre Geschichte, Kult-, Rechts-, Kriegs-, und Jagd-Gebrauche* (Berlin: Mittler und Sohn, 1908), 53; Tom von Prince, *Gegen Araber und Wahehe: 1890-1895* (Berlin: Ernst Sigfried Mittler und Sohn, 1914), 79.

[13] For detailed accounts of the battle see Hugold Behr, "Der Kampf gegen die Wahehe," *Militär-Wochenblatt* 77 (1892): 420-428; B. Arnold, Die Schlacht bei Rugaro 1891 (Tansania, Iringa); Nigmann, *Die Wahehe*.

their guns calmly one or two rounds before being overpowered. The fight lasted for a few hours and ended with the Hehe winning the battle. The aftermath was bloody and costly to both parties. As the *Schutztruppen* (German protection troops) officer Ernst Nigmann has explained for the German side, "no campaign cost us more blood and treasure than this one". Eleven high-ranking German officers, 350 *askaris* and porters were killed, and a substantial number mortally wounded. Some Germans at the rear guard of the expeditionary column survived and retreated eastward about 200 meters, took a hill position, and kept firing several rounds of bullets to defend themselves for the remainder of the day, leaving hundreds of their dead scattered over the landscape. Only 3 Germans, 62 *askaris*, and 74 porters survived.[14] The Hehe confiscated 300 rifles, cartridges, cannons, and Maxim machine guns. Unfortunately, the win also came at a cost to the Hehe side as the casualties may have numbered between 200 and 700 people, including Ngosingosi Mkwawa's son in law and a subordinate ruler in the Kalenga fort located west of modern Iringa town.[15]

The Hehe win at Lugalo bolstered their morale and, in October 1892, they ambushed the German garrison at Kilosa on the northern fringe of their empire and killed Brüning, the head of the station. Nevertheless, the German forces in

[14] Prince, *Araber und Wahehe*, 97.
[15] Martin Gabriel, "German Counterinsurgency Operations in East Africa: the Hehe War, 1890-1898," *Small Wars Journal* (2012): 1-7; Pizzo, "Land of Mkwawa", 100.

1893 defeated the Hehe at Kilimatinde, which reinvigorated their confidence and felt ready to assault Mkwawa's heavily fortified capital at Kalenga in a large punitive expedition on October 28th, 1894, under a new commander Friedrich von Schele. After two days of the fierce fight, the Germans devastated Kalenga, but most people and Mkwawa escaped. The Germans seized cattle, goats, sheep, and about 14 tons of gunpowder. The suicidal death of Mkwawa at Mlambalasi rock shelter in 1898 to avoid capture by the German forces brought an end to the war between the Germans and the Hehe. His head was decapitated and given to Captain Tom von Prince (1866-1914) as a memento to end up in the Übersee-museum Bremen.[16] The British Governor, Sir Edward Twining, restituted Mkwawa's skull on July 9th, 1954, to Kalenga as part of the Treaty of Versailles of 1919, where and other materials illustrating the Hehe cultural history are curated and exhibited.

There is a big obelisk monument (technically a mass grave containing the mortal remains of the German and Hehe causalities) that measures approximately 15 m high erected at Lugalo to commemorate the death of Emil von Zelewski and the *askaris* killed by the Hehe (Figure 1). On March 13th, 1953 was proclaimed as a national monument with Government

[16] Iliffe, *Modern History*, 1979; Brockmeyer, Edward & Stoecker, "Mkwawa Complex"; Garsha, "Head of Chief Mkwawa".

Notice No. 89. This is the only visible trace of the battle that can be seen today. But military battles are characteristically chaotic mobile events and often cover large areas leaving behind debris in the form of scatters of artefacts fired, torn-off, or dropped during the fight. Indeed, other relics of the battle still lie scattered and/or buried beneath the soil awaiting recovery.

For the Hehe, the Lugalo landscape is bloodstained, sanctified, and epitomizes a scene of a memorable heroic event against a well-equipped European army. The memories of the battle and a win still remain deeply ingrained among the Hehe. However, it was only at Lugalo where the German forces suffered a massive and humiliating defeat ever throughout their Africa's conquest campaign. August 17th, 1891, will always count as one of the tragic incidents in the history of the Germans colonial wars. David Pizzo equates the annihilation of the Zelewski's column at Lugalo as a colonial Germany's "Battle of Little Bighorn".[17] Pizzo also maintains that, at Lugalo, their "deadly breech-loaders (Mauser M71s), machine guns, and artillery of the German column, so often the decisive factor in warfare between Europeans and Africans proved on this occasion to be almost useless"[18]. The Hehe warriors were mainly equipped with shields and spears. Nevertheless, what went wrong for the *Schutztruppe* and served advantageous for the Hehe

[17] Pizzo, "Land of Mkwawa", 39.
[18] *Ibid*., 93.

warriors? Future research works integrating archaeology, military terrain analysis, and Geographic Information Systems (GIS) undoubtedly will come up with plausible answers and may help answer many of the still open questions.

Figure 1: University of Dar es Salaam Students at Lugalo Monument (Source F. Masele)

3. Materials and Methods

Between 7th August and 8th September 2018, the author, accompanied by 40 undergraduate archaeology and heritage management students from the University of Dar es Salaam, conducted an initial survey of Lugalo village to search for material evidence of the battle (Figures 1 to 3). The practice is common in Tanzania, and students usually take part in fieldwork and excavations directed by local archaeologists and those co-directed with foreigners as part of practical training and mentorship. Given the rugged nature of the landscape and dense vegetation cover, the archaeological surveys mainly concentrated on isolated open farms (Figure 3). Artefact type, GPS location, and altitude above the sea level were recorded for each item recovered. No archaeological excavation was conducted for the season.

Upon recovery, artefacts were examined to determine their state of preservation and need for rigorous cleaning or conservation. Artefacts were gently scrubbed with a soft brush and later washed with clean water. The majority of the cases had no adhering soil, as were mainly surface finds. However, a few specimens exhibited marginal traces of oxidation and water-induced patination. These were immersed in a weak acetic acid (5%) to remove the oxides from the metal built during the years potentially in the ground and later were washed with clean water.

Bullet cartridges were examined using orthodox firearms identification procedures[19]. The bottom of a cartridge case is often embossed with several pieces of information called headstamps. They may comprise a combination of letters, numbers (Arabic or Roman), signs, and symbols in different layouts. Headstamps usually give information about the place of manufacture, date of manufacture, sometimes lot/batch number, supplier, and cartridge type[20]. A letter at 12 o'clock position denotes a town or city of manufacture. The number(s) at 3 o'clock position is the year of production (normally as the last 2 digits), and a star symbol (*) at 6 o'clock position stands for brass content. The number placed at 9 o'clock position is the month of production. The headstamps were meticulously studied to identify the type of a firearm (brand or model) in which a given cartridge case was fired and to determine the minimum number of weapons used by the combatants during the fight. A firing pin mark is usually left on the base of a cartridge when fired in a gun. Hand lens at 10× magnifications was used to diagnose evidence of abrasion as well as class and individual

[19] Jack Gunther and Charles Gunther, *Identification of Firearms* (London: John Willey and Sons, 1935); Julian Hatcher, et al., *Firearms Investigation, Identification and Evidence* (Harrisburg PA: Stackpole Books, 1977); Robert Walker, *Cartridges and Firearm Identification* (New York: CRS Press, 2013).

[20] Henry White and Burton Munhall, *Cartridge Headstamp Guide* (Maryland: H.P. White Laboratory, 1963).

characteristics like firing pin mark presence or absence thereof. The measurements of cases to establish the calibre of a firearm(s) were taken using a Mitutoyo 500 digimatic digital calliper.

Figure 2: University of Dar es Salaam Students at Lugalo (Source F. Masele)

Figure 3: Archaeological Foot-survey of Lugalo Battlefield (Source F. Masele)

4. Results

A total of 13 military cartridge cases without their bullets were recovered from approximately 8 acres intensively foot-surveyed (Figure 3). These are the direct evidence of the individual firearms used during the battle in 1891. The majority of the cases were recovered from the northern part of the village and a short distance from the old track to Iringa town (n = 11). A few cases were also recovered near the existing monument (n = 2). Future archaeological surveys certainly are expected to expand the sample of cartridge cases. Nevertheless, this is a relatively large assemblage of artefacts recovered from the German-Hehe battlefields in Iringa Region. A few cases are reported from Kalenga fort and Mlambalasi rock shelter (n = 6 and n = 1, respectively). The cases exhibited in the Kalenga museum lack archaeological contextual information, except the narrations were collected after the battle of 1894. Details of the recovery of a fired Mauser cartridge from Mlambalasi where Mkwawa committed suicide are provided in Willoughby and her colleagues.[21]

Of the 13 cartridges recovered, 9 had well-preserved and clearly visible headstamps, and the rest were damaged (Figure 4). Damaged cases exhibited post-depositional deformations, dents, striations, and intentional human

[21] See Willoughby et al., "A German Rifle Casing", 27-28.

modifications. The artefacts are all brass cases and of a centre-fire category[22]. The majority are rimmed (n = 10) and a few are rimless-bottlenecked (n = 2) cases. They are head stamped with different letters and numbers with or without a star symbol (*). The cases also bear three (triple-entry headstamps or a 3×120 layout) or four (quadruple-entry headstamps or a 4×90 layout) pieces of information. Details of headstamps on cartridge cases are presented below in a clockwise manner.

Cartridges 1 and 2 are head-stamped **S 86 * 7** and **S 88 * 2**, which denote are products from the former Koenigliche Munitionsfabrik Spandau in Germany. The dates of their manufacture are July 1886 and February 1888, respectively. Both are 11.15×60R cartridges and were fired in Mauser rifles (Figure 4).

Cartridge 3 is stamped **12 A 75 S** indicating was manufactured in December 1875. It is an 11.15×60R case fired in a Mauser rifle (Figure 4). Willoughby and her colleagues have also reported a case with virtually identical headstamps (stamped **3 A 76 S**) currently exhibited in the Kalenga museum[23]. The notable difference is the month and year of manufacture. Letters "**S**" and "**A**" on cartridges placed at 9 and 3 o'clock position respectively was a headstamp style used by the Small Arms & Metal Company Limited of Birmingham in

[22]See Frank Barnes, *Cartridges of the World.* 14th ed. (Northbrook: DBI Books, 1989); White and Munhall, *Cartridge Headstamp*.
[23] Willoughby, "A German Rifle Casing", 30.

England. The company was formed in 1873 following the merger of the Birmingham Small Arms Company and the Adderley Park Rolling Mills. It was one of the earliest manufacturers of the Mauser 71 rifle cartridges and exported to Germany until the munition factories in the country met the required standards by the government[24]. The company also later administered the installation of the munition factories at Spandau, Danzig, and Erfurt.

Cartridge 4 is stamped with **D 4 * 82**. The case was manufacture by the former munition factory at Danzig in Germany in April 1882. It is an 11.15×60R cartridge (Figure 4). Cartridge 5 bears **D 83 * 1** denoting was manufactured in January 1883 also at Danzig arsenal. Like others, it is an 11.15×60R cartridge. The cartridge case is not fired (Figure 4). Cartridge 6 bears headstamp **L 1882 VIII** and is a typical triple-entry headstamps or a 3×120 layout case.[25] This clearly is a headstamp of the Deutsche Metallpatronenfabrik Lorenz, Karlsruhe in Germany. Since the case bears a Roman number VIII at 3 o'clock position, it may correspond to the

[24] Erik Windisch and Bernd Kellner, *Die Munition zum Mausergewehr M71: Die erste Deutsche Metallpatrone, Ihre Vorläufer und Nachfolger* (Rosengarten, Schwäbisch Gmünd: Patronensammlervereinigung eV, 2005).

[25] Ian Hogg, *Cartridge Guide: The Small Arms Ammunition, Identification Manual* (Harrisburg: Stackpole Books, 1982).

month of production which is August of 1882[26]. It is an 11.15×60R Mauser cartridge also not fired (Figure 4).

The base of cartridge 7 is stamped **S 85 * 12**. It is an 11.15×60R cartridge manufactured in December 1885 at Spandau arsenal. The case was fired in a Mauser rifle. Cartridge 8 is also an 11.15×60R cartridge fired in a Mauser rifle. Unfortunately, its base is significantly damaged and only an Arabic numeral **2** can be read out at 9 o'clock position to make the month of production February (Figure 4). The city and year of manufacture for this case could not be determined.

Cartridge 9 is a rimless-bottlenecked and fired cartridge stamped **350 Magnum Nitro Rigby** (Figure 4). John Rigby and Company designed it in 1908 for use in Mauser magnum magazine rifles. The cartridges were prevalent in Africa for safari hunting of dangerous large animals including rhino, elephants, and buffalo[27]. Cartridge 10 bears **375 H&H RWS** was invented in 1912. The RWS stands for Rheinische-Westfalische Sprenstoff Company established in 1886 and had factories at Nürnberg and Fürth Stadlen in Germany.[28] The cartridge resembles 35 Winchester in general appearance and is also fired (Figure 4). It is also a rimless-

[26] Eric Cline and Anthony Sutter, "Battlefield Archaeology at Armageddon: Cartridge Cases and the 1948 Battle for Megiddo, Israel," *Journal of Military History* 75 no. 1 (2011): 172.
[27] John Taylor, *African Rifles and Cartridges* (Harrisburg: Spottsman's vitange Press, 1948).
[28] Walker, *Cartridges and Firearm*.

bottlenecked and fired cartridge case for bolt-action Mauser-type magazine rifles very popular for hunting big game[29].

Cartridges 11 to 13 are all damaged cases and yielded less information. Cartridge 11 is an 11.15×60R rifle cartridge. Its base is significantly damaged rendering its headstamps unreadable, but it has a firing pin mark imprint which suggest was also fired from a Mauser rifle (Figure 4). The city, month, and year of manufacture for this case could not be precisely determined. As for cartridge 12, is only represented by its medial part and distal end and its proximal part is missing. Its neck and shoulder diameters match the 11.15×60R Mauser cartridges. As seen in Figure 4, the case also shows evidence of later deliberate human modification and reuse to hold firm an arrow to the wooden shaft commonly used to hunt birds and small-sized animals. Of note, the case still retains a piece of wood inside. Cartridge 13 is only represented by its distal end and could not be identified to specific types or accurately dated.

[29] Taylor, *African Rifles*.

Figure 4: Headstamps on Cartridges from Lugalo Battlefield (Source F. Masele)

5. Minimum Firearms Count

Historical sources show the German expeditionary column was armed with Mauser rifles, cannons, and a couple of Maxim machine guns[30] and possibly Seitengewehr model 1871 (abbreviated short name as S71) long bayonets designed for use with the Mauser rifles[31]. Besides, the German

[30] Prince, *Araber und Wahehe*, 80-82, 307; Redmayne, "Hehe Wars", 431; Pizzo, "Land of Mkwawa", 86.

[31] See Emile Lavisse, *Field Equipment of the European Foot Soldier 1900-1914* (Nashville, 1994. 14-20; Chris Dale, "Von Zelewski's Last Stand: The

commander von Zelewski riding a donkey near the front of the column, defended himself with a revolver (most likely the 1879 Reichsrevolver) and killed three Hehe warriors before being speared in the back[32].

Guns cannot be easily ruled out were not in the hands of the Hehe warriors during the fight. According to Alison Redmayne, the Hehe acquired firearms much later than the Sangu and Nyamwezi from Mbeya and Tabora Regions respectively. Hehe got guns and gunpowder after 1830 through trade exchange of slaves and ivory with the Arabs and Swahili traders at the post known as Mukondoa near Kilosa town[33]. They had very few guns at the end of 1877 when Frederic J. Elton and Henry B. Cotterill witnessed them in a battle with the Sangu[34]. Still, the Hehe had fewer guns when they defeated the Nyamwezi warriors who had many guns in 1880. Besides, Lieutenant von Tettenborn who was one of the survivors at Lugalo saw on 15th and 16th August 1891 a few Hehe warriors at Image village armed with a few guns but most had only spears and shields[35]. Some historical

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Battle of Lugalu 17 August 1891", (2017), 5. Accessed from www.academic.edu on 14.06.2021.

[32] Prince, *Araber und Wahehe*, 307; Pizzo, "Land of Mkwawa", 96; Dale, 5.

[33] Redmayne, "Hehe Wars", 390, 410-416.

[34] Frederic Elton and Henry Cotterill, *The Lakes and Mountains of Eastern and Central Africa* (London: John Murray, 1879), 378; Redmayne, "Hehe Wars", 426; Iliffe, *Modern History*, 109.

[35] Redmayne, "Hehe Wars", 419.

sources also mention that the Hehe warriors had rifles of local production during the fight at Lugalo[36]. Later the Hehe acquired 300 Mauser rifles when they defeated the German at Lugalo. Chief Mkwawa kept the guns and exclusively were given to the royal guards, elite warriors, and elephant hunters. Besides, Mkwawa possessed a gun and bullet cartridges (most likely Mauser cartridge cases) until his death at Mlambalasi[37]. At Lugalo, the Hehe warriors were mainly armed with stabbing and throwing spears made using wood, and a metallic head, and shields made out of cowhide. Like many other African warriors, the Hehe preferred spears (short and long spears are known as *missala* and *migoha* respectively in Hehe language) and shields because they were effective in numerous intertribal battles with neighboring rivals. At close combat range, a stabbing spear is much more effective and highly lethal[38]. According to Redmayne, the Hehe copied their stabbing spears and shields designs from the Sangu, who also copied them from the Ngoni from Ruvuma Region.

6. Discussion

After 130 years of a courageous historical event, an initial archaeological survey results indicate Lugalo battlefield holds a high potential for intensive conflict archaeology

[36] Pizzo, "Land of Mkwawa", 94.
[37] Redmayne, "Hehe Wars", 426; Iliffe, *Modern History*, 115-116; Pizzo, "Land of Mkwawa", 71, 94.
[38] Chris Peers and Raffaele Ruggeri, *Warrior People of East Africa* (Oxford: Osprey Publishing, 2005).

studies. The military engagement left physical evidence which are still scattered over the battlefield. The cartridge cases recovered comprise a limited variety representing the actual firearms used in the fight. Most of the cases are of German origin and match those collected from Kalenga and Mlambalasi[39]. Mauser cartridges are the most common type (n = 10) and predate the August 17th 1891 event. The dates of their manufacture vary with a range of 13 years, with the earliest recorded date being December 1875 and the most recent date being February 1888. Peter Mauser designed the 11.15×60R also known as 11 mm or .43 cartridge in 1871 for use in bolt-action Mauser rifle model M71. It was a versatile smokeless black powder cartridge used in German military and sporting rifles of the time. The former German government arsenals at Spandau, Danzig, and Erfurt mass-produced the Mauser cartridges[40]. In 1872 the German government adopted the 11 mm as the standard military rifle cartridge and was in use until 1888[41].

The recovery of a couple unfired Mauser cartridge cases from the battlefield is of particular interest (Figure 4 and 5; cartridge no. 4 to 6). The cases were recovered about 70 m south of the old track to Iringa (see Figure 5). It can be

[39] See in Willoughby et al., "A German Rifle Casing" for the details.
[40] White and Munhall, *Cartridge Headstamp*, 1963; Hogg, *Cartridge Guide*, 1982.
[41] Barnes, *Cartridges*.

suggested, the cases either misfired or were accidentally dropped by panicked Germans expeditionary corps or as they tried to load their guns in haste when ambushed by the Hehe. Unfired cases can also confirm the hasty and haphazard nature of the battle as reported in different historical accounts and/or may suggest the possible location of the epicenter of the ambush and where the main German expeditionary column was decimated by the Hehe warriors. Besides, the cases may also hint where the heavy fights took place.

Firing pin marks typically deep oval-shaped impressions were noted on a total of six Mauser cases, which corroborate the historical and oral accounts that there was an exchange of fire at Lugalo (Figure 4 and 5; cartridge no. 1 to 3, 7, 8 and 11). However, none of these had multiple firing pin marks. The cartridge cases were mainly fired from Mauser rifles. Certainly, survivors of the German expeditionary column (the 6th company which did not fall into the Hehe trap) mainly fired the cases during their retreat eastward (Figure 5). Peter Mauser also invented the Mauser rifle in 1871 also called Gewehr M71[42]. It was a single-shot breech-loader rifle using bolt-action mass-produced at Spandau and Danzig arsenals for distribution to the imperial German forces by early 1872. By 1886 the German forces were equipped with

[42] Walther Smith, *Mauser Rifles and Pistols*, 3rd ed. (Pennsylvania: Military Service Publishing Company, 1956); Robert Ball, *Mauser Military Rifles of the World*, 4th ed. (Iola: Krause Publications, 2003).

approximately 1.82 million Mauser rifles[43]. The Mauser rifle was superior to other rifles in competition at the time. It was a remarkably efficient weapon and won a lethal reputation. It weighed 4.7 kgs, 1.4 m overall length, with a firing range of 2.93 kms, and a rate of firing five rounds per minute. It was upgraded in 1884 and designated the model Gewehr M71/84 rifle chambering the same 11 mm Mauser cartridges. The new model also became the first German magazine-fed and repeating rifle. The German army commission approved in 1884 the M71/84 rifle and therefore could have been available and used at Lugalo in 1891.

It is tempting to suggest the cannons and Maxim machine guns were not used at Lugalo as the Germans could not manage to get them into actions. Future research works can bolster this tentative hypothesis. Historical sources covering the battle state a Hehe warrior spear-stabbed Sergeant Unteroffizier Thiedemann to his abdomen while he was trying to unfasten the Maxim machine gun from the donkey[44]. Later, on the same day he succumbed to his spear wounds and was buried at Lugalo. Of note, no gun, Maxim gun fired cartridges, or fragments of artillery shells were recovered from the area surveyed. The fact that the ambush on the Germans happened so hurriedly and unexpectedly can explain their absence. The offensive Hehe warriors

[43] *Ibid*., 65.
[44] Prince, *Araber und Wahehe*, 307; Pizzo, "Land of Mkwawa", 95.

surprised the Germans who totally had no idea of their presence at Lugalo. As Lieutenant von Heydebreck one of the survivors later reported on the disaster "the entire sequence of events…had played itself out two to three minutes"[45].

A small concentration of fired cartridges is clearly noted on the northern edge of Lugalo village and near the old track to Iringa (Figure 5). Fired cases can hint the German survivors eastward withdraw route, movements, and their position during and after the ambush. The Hehe main fighting forces might have been positioned immediately west of the concentration of fired cases. Due to the small sample size of cases, this suggestion is tentative, but it is anticipated will be augmented in future analyses of a larger dataset of battle-related artefacts. Besides, it must be noted that fired cartridge cases stamped **Magnum Nitro Rigby** and **375 H&H RWS** cannot be ascribed to the battle as their date of manufacture postdate the event and these are more likely the products of later big game hunting at Lugalo (Figure 4; cartridge no. 10 and 11).

Lugalo landscape was ideal for an ambush with spears and shields. The Hehe chose a military wise suitable location to effectively execute the ambush on the Germans. The site of the ambush was a rather long narrow and deep curved Mgera River valley (Figure 5). The Hehe warriors took advantage of both the landscape and vegetation cover

[45] Quoted by Pizzo, *idem*, 70.

against the enemy armed with superior weapons to avoid an open battle. The dense forest and tall grasses considerably limited visibility from the flanks for the Germans. The large rocks provided the Hehe warriors with both cover and protection from the German rifles and machine guns. The Hehe used an improved Zulu's "cow horns formation" (flanks attacks from left and rights) well-suited to the landscape of the Uhehe that permitted total encirclement, and eliminated gaps through which the Germans could have escaped at Lugalo. The fighting tactic organization also permitted continuous battle-readiness and to respond to an attack from any direction[46]. Historical sources also admit the Hehe enjoyed a unique "military intelligence network" developed over decades of warfare with neighbouring societies. They constantly gathered "intelligence information" using spies (*vatandisi)* who also during battles operated two to four days march ahead of the main army.[47] The Hehe favoured to march at night, take up position, and then attacked during the day. Before the ambush the Hehe had detailed information on the size, composition of the German expeditionary column, and position of their firearms. Spears (stabbing and throwing) and shields in the hands of the Hehe warriors played a significant role in the ambush.

[46] Pizzo, "Land of Mkwawa", 87.

[47] See in a film documentary by Seko Shamte, *Mkwawa: Shujaa wa Wahehe* (2011).

Indeed, it was a stabbing spear that finished the life and military carrier of the German commander Emil von Zelewski and took the victory at Lugalo from the German forces well-equipped with modern weapons. At Lugalo each Hehe warrior had up to six throwing spears and a stabbing spear with a long blade. Historians have frequently attributed the Germans defeat to von Zelewski's arrogance and underestimation of the Hehe army strength. He also neglected the military advice and support given by his compatriot Captain Tom von Prince before the annihilation as he adamantly mocked in reply, "the fellows [the ***Hehe***] haven't even got guns, just shields, and spears"[48]. He also made a grave mistake of ignoring to send patrols ahead to secure the route in advance[49]. Tom von Prince later admitted "we knew very little about this tribe [the Hehe], but everything indicated that they were not to be taken lightly"[50]. Nevertheless, military historians and archaeologists concur that battlefield like Lugalo are better interpreted from a "military terrain analysis" approach[51]. Ongoing archaeological research at Lugalo battlefield directed by the author follows the models and analytical methods of modern conflict archaeology.

[48] Prince, *Araber und Wahehe*, 89; Redmayne, "Hehe Wars", 419; Iliffe, *Modern History*, 108; Pizzo, "Land of Mkwawa", 87-93.
[49] Prince, *Araber und Wahehe*, 174; Pizzo, "Land of Mkwawa", 12.
[50] Prince, *Araber und Wahehe*, 80.
[51] Sivilich and Sivilich, "Surveying, statistics, and spatial mapping".

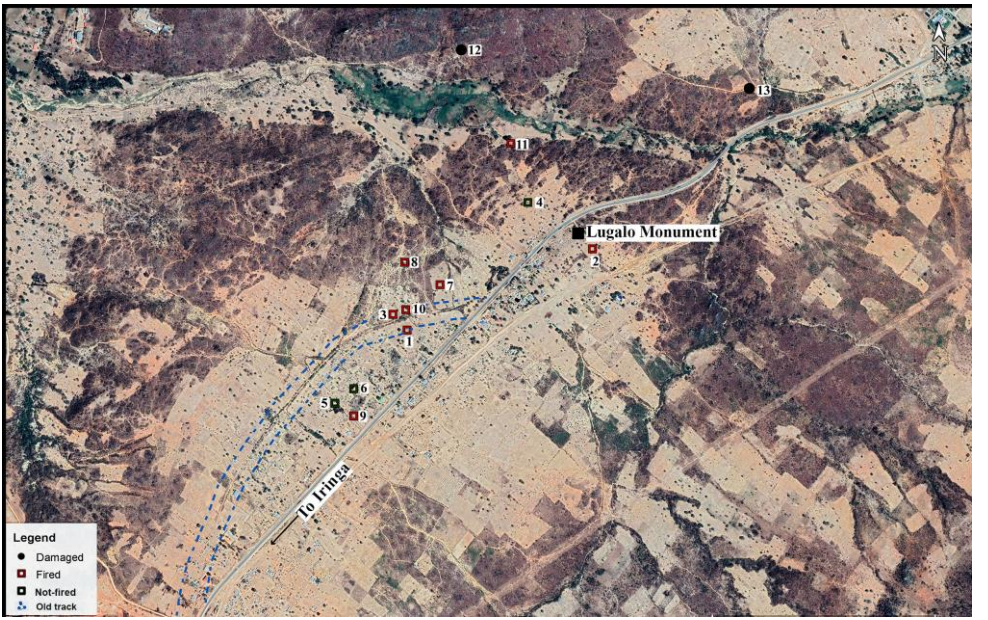

Figure 5: Distribution of Cartridges from Lugalo Battlefield
(Notation by author; Image from Google Earth)

7. Future Research Agenda

The integrity of the battlefield is good and has not undergone significant land modifications. A tiny part of the battlefield was destroyed in the late 1960s following a tarmac road construction through Lugalo village to Iringa town. Looting of battle-related artefacts and illegal metal detecting by relic hunters have not been reported. The village is also not highly populated, and there are relatively few houses and graves scattered on the battlefield (Figure 5). The survey conducted cannot be taken as a complete archaeological

understanding of the Lugalo battlefield. The following further research agendas are equally viable and encouraged.

As of now, the core location where the battle was fought is not precisely known. It is generally assumed by many people that the area (s) near the existing monument was the core of the military engagement and away from it as the peripheries (Figure 1 and 5). It is suggested that future archaeological works should aim at locating the core and the boundaries of the battlefield. Future archaeological studies can also provide valuable data that cannot be gleaned from the available historical and oral accounts. Spatial distribution of bullet cartridge cases can precisely yield information on how the Hehe executed the deadly ambush, avenues of attack without being noticed, and movement of the German soldiers and individual firearms across the Lugalo battlefield (see Figure 5).

Historical chronicles and oral accounts describe the Hehe executed the ambush along or near the track running to Iringa town[52]. Indeed, this area witnessed the majority of the actions of the military engagement. Part of the track about 3.5 km long is still visible in the northern part of the village (see Figure 5 marked with blue dotted lines). Mouldered mortal remains of the battle causalities also spent several years scattered on the ground along it before being interred

[52] Prince, *Araber und Wahehe*, 306, Redmayne, "Hehe Wars", 419, Iliffe, *Modern History*, 109; Pizzo, "Land of Mkwawa", 93.

in the erected monument[53]. The majority of the cartridge cases were also recovered from near the track. Fittingly, the area is pivotal and should receive special attention and intensively searched for battle-related relics. Since the surviving battle-related artefacts are mostly metallic or associated with a metal, metal detectors are the most effective to locate them[54]. It is also suggested that the track should be marked and protected as a national monument. Currently, the legal protection is limited to the existing erected monument.

Future and ongoing research should be directed towards a better interpretation of the battlefield to enhance the visitors' experience. The artefacts recovered have both commemorative and economic values and can be used to make an exhibit to visitors. Community engagement should also be the focus of future research. This will help to protect and conserve the integrity of the battlefield. Any future development works involving land modifications should not be carried out without a detailed archaeological survey. This can be easily achieved by ensuring the presence of an archaeologist on-site.

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[53] Prince, *Araber und Wahehe*, 307-308.

[54] Linda Stine and Darren Shumate, "Metal detecting: an effective tool for archaeological research and community engagement." *North American Archaeologist* 36, no. 4 (2015): 289-323.

Politics on the Growth and Development of the Agricultural Marketing Co-operatives in Tanganyika, c. 1920s -1930s

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Abstract

This article examines the politics and passage of the co-operative legislation in 1932 that led to the suffocation and eventual strangulation of the Kilimanjaro Native Planters Association (KNPA). In Kilimanjaro, Agricultural Marketing Co-operatives (AMCOs) were registered from 1933 onwards to market coffee. This similarly happened in Ngara District and Ruvuma Region. In Kilimanjaro, the colonial authorities as a whole were responsible for the introduction of AMCOs while in Ngara and Ruvuma the AMCOs were promoted by local colonial officials. In other parts of the country, senior colonial officials deprived support and undermined emerging interests for co-operatives. Additionally, the Registrar's efforts to promote co-operatives was undermined. Consequently, limited development of co-operative undertakings was evident in the territory during interwar years including in areas that produced cash crops. Generally, the promotion of AMCOs lacked central coordination. Political interests dominated the decisions regarding the promotion of AMCOs.

Key Words: Tanganyika, co-operatives, colonial politics, Kilimanjaro, agricultural marketing.

1. Introduction

Co-operative movements and societies are not new in human history. The modern types of co-operative societies were first created under the rules guided by the Rochdale Society Equitable Pioneers and Germany's Raiffeisen that were set up across Europe from mid-19th century. The Rochdale Pioneers established consumer co-operatives in Britain that supplied consumer goods and services to its members at reasonable prices. Raiffeisen promoted the credit co-operative societies in Germany in response to the failure of formal financial institutions to provide loans to farmers and urban artisans.[1] According to historians Rita Rhodes, Margaret Digby and C.F. Strickland, the success of co-operatives in Western Europe influenced the formation of similar organisations in the Northern and Southern America, Scandinavian and Eastern European countries.[2] The British Empire, with colonies across continents, facilitated the establishment of various types of co-operatives in her colonies. One of the earliest British attempts to promote co-operatives in her colonies took place in India where credit co-operative societies were established in 1904 to address the problem of rural poverty and control exorbitant interest rates charged

[1] Somo M.L Seimu. "The Growth and Development of Coffee and Cotton Marketing Co-operative Societies in Tanzania, c. 1932 – 1982" (University of Central Lancashire, PhD thesis, 2015).

[2] Rita Rhodes. *Empire and Co-operation: How the British Empire used Co-operatives in its Development Strategies 1900 – 1990* (Edinburgh: John Donald, 2012); Margaret Digby. *The World Co-operative Movement* (London: Hutchinson and Company Limited, 1960); C.F. Strickland. *Co-operation in the Colonies* (London: George Allen and Unwin Co. Ltd., 1945).

by money lenders to small-scale farmers in rural localities.[3] Afterwards, similar co-operatives were formed for same reason in other Asian British colonies of Malaysia, Myanmar and Sri Lanka.

In African colonies, Britain promoted and encouraged farming of both food and cash crops at peasant and settler levels. The crop production in the colonial era targeted the external markets. In Tanganyika, now Tanzania, when Britain took over the territory from the Germans in 1918, they adopted a pro-small-scale growers' policy that contributed to the production of food crops like rice and maize as well as cash crops for industrial raw materials such as cotton and coffee. Put precisely, the British put the peasantry sector and its interests at the expense of settler sector. As a result, the cultivation of export crops by native peasants represented an important and long-established economic activity during the British colonial period since it was the main cash resource for small-scale growers. The export crop farming extensively promoted peasant agricultural development and integrated them into the global export market.

Britain had several colonies in Africa where the European settlers in Zimbabwe, Kenya and South Africa.[4] The settler communities in mentioned countries formed agricultural marketing co-operatives to facilitate or bulk their agricultural produce and marketing as well as credit co-

[3] Digby, *The World of Co-operative Movement*.
[4] Rhodes, *Empire and Co-operation*.

operative societies which provided them with financial services such as soft loans with low interests to its members.[5] However, before the First World War, no attempt was made to promote agricultural co-operatives among the majority colonized natives in British colonies in Africa. Even the Germans who had preceded the British in colonial control of Tanganyika had not promoted rise of African marketing and financial co-operatives. Thus, when the British took over the territory, they introduced some policy changes in favour of the natives engaged in peasant production. However, as it will be shown below, the policy had deeper underlying objectives: to exert control over peasantry and their produce.

This article explores the colonial authority in Tanganyika concerted efforts in promotion of the agricultural marketing societies (AMCOs) in various parts of the territory. The paper traces the initiatives directed to formation of AMCOs. The papers established that such initiatives were not consistent from one district to the other and none of the existing literature has examined or assessed the factors that led to these myriad geographical differentiations in the development of the movement in the country and timing of the emergence of co-operatives.

[5] Strickland, *Co-operation in the Colonies*, 38.

The AMCOs were formed as a political expediency to undermine the existing growers' associations like the Kilimanjaro Native Planters Association (KNPA), which appeared too ambitious and possibly a threat to the colonial interests. Having judged the KNPA as troublesome and incompetent organisation, the colonial officials at varied times and levels planned for its control by using various mechanisms. The critical mechanism in this regard was promulgation of the co-operative legislation in 1932.

However, there was inconsistency in promotion of AMCOs which was embedded in either lack of strong policy or lack of strong interest from the colonial officials. Some colonial officials, for instance, employed powers at their disposal to undermine any attempt from the Registrar of Co-operatives, local chiefs, growers or other stakeholders to establish AMCOs.

Upon passage of the co-operative legislation, it was envisioned the AMCOs and other types of co-operatives would be promoted. This was however contrary to expectations and a commitment made by Tanganyika's colonial authority to the Colonial Office (CO) in London. It is evident that there was a contestation in theory and practice between the local colonial authorities in Tanganyika and the imperial authorities in London. Following the formation and registration of AMCOs in Moshi district, inactivity prevailed in most other parts of the territory. However, some colonial officials in some districts made

some steps that were independent from the territorial colonial officials in Dar es Salaam. In these, officials at district and provincial level had to raise funds to accomplish the exercise. Disappointingly, the Registrar was rendered useless in effective his duties and responsibility, hence, during the 1920s and 1930s the AMCOs footprint in the country was limited to few pockets.

Generally, developments in most parts of the country were marred by uncertainties of which Lord Hailey describes such scenarios as 'hesitation approach.[6] However, Lord Harley has not provided evidence or an account for such hesitation. Moreover, in 1944 the CO appointed Mr. W.K.H. Campbell to investigate the possibilities for co-operative development in East African countries. In his report on Tanzania Campbell identified six key factors that led to the slow progress.[7] First, shortage of co-operative staff; secondly, the KNPA experience; third, nervousness created by the 1937 coffee riots in Kilimanjaro; fourth, the inability of growers to manage societies; and sixth fears among the colonial officials that co-operatives would interfere with the Native Authorities' affairs. Basically, issues raised by Campbell were unsubstantiated and he did not point a finger to obstruction

[6] Lord Hailey. *An African Survey: A Study of Problems Arising in Africa South of Sahara* (London: Oxford University Press, 1938), 1467.
[7] W.K.H. Campbell's Report of Visit to Tanganyika, July 29th 1944, TNA 35783.

by the colonial officials. Against the backdrop, this paper attempts to fill the gap by providing new findings that demonstrates a double standard applied by colonial officials in the promotion of the AMCOs in Tanzania during interwar years.

The historians and social scientists Rohland Schuknecht, P. Hibbeln and Goran Hydén presented their own version regarding this development of co-operatives by suggesting that the emergence of the KNPA and other indigenous initiatives was driven by the communal traditions of African societies.[8] They invoked elements of precolonial African egalitarian principles which were also used by Julius Nyerere, the first president of Tanzania to justify Ujamaa – African socialism.[9] John Iliffe's *A Modern History of Tanganyika* is a comprehensive and fully-documented history of Tanzania from 1800 to 1961 about the social, political and economic history of some ethnic groups' pre-colonial as well as the German and British colonial histories in the country. [10] Iliffe

[8] Rohland Schuknecht. *British Colonial Development Policy After the Second World War: The case of Sukumaland, Tanganyika* (Münster: LIT Verlag, 2010), 274; P. J. Hibbeln. "A Sacred Trust of Civilization: The B Mandates Under Britain, France, and The League of Nations' Permanent Mandates Commission, 1919-1939" (Ohio State University, PhD Thesis, 2002); Goran Hydén. *Beyond Ujamaa in Tanzania: Underdevelopment and an Uncaptured Peasantry* (Berkeley: University of California Press, 1980), 64.

[9] See in Julius K. Nyerere, *Freedom and Socialism* (Dar es Salaam: Oxford University Press, 1968

[10] John Iliffe. *A Modern History of Tanganyika* (Cambridge: Cambridge University Press, 1979).

has produced a well-documented history of the KNPA. However, Iliffe does not establish the reasons for its replacement and how the process was carried out.[11] Before Iliffe's work, Charlotte Leubuscher had attempted an explanation of the KNPA's intervention to have mainly resulted from financial difficulties and misappropriation of funds. The colonial state used the two reasons to restructure KNPA.[12] Not said Leubuscher is the hidden fear of the colonial state over KNPA's political activism that inherently triggered the promulgation of the co-operative legislation and consequential restructuring of the KNPA. Of course,

Andrew Coulson work in Tanzania covers political and economic development during pre-colonial, colonial and post-colonial period.[13] Interestingly, Coulson work covers AMCOs during colonial era. In his work, Coulson provides some explanations about co-operatives in Kilimanjaro and the rest of the country. A review of his work has established that, Coulson is salient over how and why the KNPA was 'restructured' into the KNCU.[14] A linkage between the co-operative legislation and registration of the KNCU and its affiliated societies is not established in the Coulson's work.

[11] *Ibid*.
[12] Charlotte Leubuscher. *Tanganyika Territory: A study of Economic Policy under Mandate* (London: Oxford University Press, 1944), 51 – 53.
[13] Andrew Coulson. *Tanzania: A Political Economy* (New York: Oxford University Press, 1982).
[14] Coulson, *ibid*., 61-62.

Also, the development in Ngara and Songea districts are not provided.

Like Coulson and Illife, Ally Kimario's work provides a comprehensive narration of AMCOs in Tanzania.[15] However, there are limited details or analysis regarding the processes, policy linkages and development that led to the 'reorganisation' of the KNPA into KNCU in Kimario's account. There is also a lack of clear description on uneven development of the co-operative movement in the country. In her work, Rita Rhodes has ignored the contribution of Tanzania's colonial authority in the late 1920s and early 1930s in providing the Colonial Office the impetus for promoting co-operatives in the colonies.[16] She also fails to acknowledge that Tanzania was the first East African country to promulgate co-operative legislation in 1932. Under the legislation, the natives had their agricultural marketing co-operative registered and it was not so for the natives in the two East African countries of Kenya and Uganda. But she acknowledges that, by 1961 Tanzania was the most co-operative-minded country of all East and Central Africa countries (Kenya, Uganda and Zambia).[17] Spaull proved to struggle as some evidence that she has generated distortions,

[15] Ally M. Kimario. *Marketing Cooperatives in Tanzania: Problems and Prospects* (Dar es Salam: Dar es Salaam University Press, 1992), 8-9.
[16] Rita Rhodes. *Empire and Co-operation: How the British Empire used Co-operatives in its Development Strategies 1900 – 1990* (Edinburgh: John Donald, 2012).
[17] Hebe Spaull, *The Co-operative Movement in the World Today*, (London: Barrie Rockliff, 1965), 96.

misleads and contradicting for example development in Kagera region. Additionally, he presents a general picture that does not reflect political and policy decisions that led to the fragmented AMCOs developments during interwar period. It worthy to note that, colonial officials' decisions led to the differentiations in the co-operative development in Tanzania from one region or districts to the other where or the small-scale cash crops were encouraged to produce export at the same time that this paper takes an interest to fill the gap.

Gorst illuminates a brief but a comprehensive history of the co-operative movement in the British colonies.[18] Gorst illuminates a brief history of co-operative movement in several countries but she generalises development in Tanzania by highlighting the colonial policies, political decision, and the role of various stakeholders in promoting, formation and registration of co-operative societies. An attempt is made in her work to show the development not only in Asian countries but also in African countries. The coverage however falls short of the historical development. For example, the development that took place in Tanzania in 1920s and 1930s that this paper expands further by examining the colonial policies and political decisions associated with

[18] Sheila Gorst. *Co-operative Organisation in Tropical Countries: A Study of Co-Operative Development in Non-Self-Governing Territories under the United Kingdom Administration* (Oxford: Basil Blackwell, 1959), 165-182.

promotion or strangulation of the natives' embryonic co-operative organisations.

Work by Dubell, suggests that, the KNPA was self-reorganised and believed that, the KNCU was a breeding ground of the co-operative movement in Tanzania.[19] Moreover, Dubell is in denial of the fact that senior colonial officials in Tanzania retracted attempts or initiatives from various stakeholders such as crop growers, local chiefs, traders and importantly the Registrar of co-operative societies among many other. Such contention by Dubell is challenged in this paper by generating how the KNPA evolved and eventual strangulation to provide a space for colonial government favoured structure through a co-operative legislation to facilitate for the control of the growers and their coffee crop.

Sadleir who was the officer in the Co-operative Department has published a brief work about the history of the co-operative movement in Tanzania from 1925 to 1960.[20] Given his position in the Department, obviously he had access to primary evidence to the co-operative development in the country. In his book the author presents a brief attention given to the KNCU, Ngoni and Matengo Co-operative Union (NGOMAT), Bugufi Coffee Co-operative Society (BCCS),

[19] F. Dubell. *Handbook on Co-operative Education* (Arusha: Tanzania Litho Limited, 1970), 7.
[20] R. Sadleir. *The Co-operative Movement in Tanganyika* (Dar es Salaam: Tanganyika Standard Printing Ltd., 1963).

Bukoba Co-operative Union (BCU), Rungwe Co-operative Union as well as, the Victoria Federation of Co-operative Unions (VFCUs). [21] However, Sadleir downplays the policy and political decisions, which prompted the colonial authority in Tanzania to promulgate the co-operative legislation. Furthermore, Sadleir has not provided an account as to why the promotion of the co-operative movement in Tanzania was characterised by uneven growth.

Digby discusses the agricultural co-operative movement in the commonwealth.[22] Her focus on Tanzania is predominantly two societies, the KNCU, NGOMAT but not Bugufi. Eckert emphasises that such a move is 'from below', even though the idea was imported from Europe.[23] She also maintains and refutes a contention that the British imposed the co-operative movement in Tanzania upon Africans. In illuminating a new understanding, this paper provides a cross-case analysis that offers not only comparability but also, a departure from generalisations and distortions, which are common in existing literature such one by Eckert.

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[21] *Ibid*.

[22] Margaret Digby. *Agricultural Co-operation in the Commonwealth* (Oxford: Blackwell, 1953), 147-150.

[23] Andreas Eckert. "Useful Instruments of Participation? Local Government and Cooperatives in Tanzania, 1940s to 1970s." *The International Journal of African Historical Studies* 40, No. 1, Continuities in Governance in Late Colonial and Early Postcolonial East Africa (2007), 97-118, URL: http://www.jstor.org/stable/40034792 Accessed on October 5th 2020.

In principle, this paper unlike other literature not only enlightens how the colonial authority in Tanzania was committed to limit and strangle the KNPA but also was characterised by inconsistent co-operative promotion policy that undermined the co-operative growth during 1920s and 1930s in many parts of the country regardless of the fact that growers were encouraged to growth cash crop at the same time as in Kilimanjaro, Ruvuma and Ngara. Nevertheless, a critical literature gap remains in the overall background regarding political and policy decisions that led to the promulgation of the co-operative legislation and the promotion of co-operatives during inter war years. Additionally, none of the existing literature has examined or assessed the factors that led to the geographical differentiations in the development of the co-operatives by assessing political, policy and legal factors that led to uneven development of agricultural marketing co-operatives in the country.

2. The Motivation behind Promotion of Co-operatives

In the early 1920s, there were several members-based organisations which handled growers' crops of which most of them were not registered. But the colonial Department of Agriculture guided and provided supervision. Such arrangements were in place in Mahenge district for marketing rice and[24] the Native Growers Association in

[24] Memorandum of the SNA on the Agricultural and Credit Co-operative Societies, TNA 13698.

Bukoba district for marketing coffee.[25]The settlers organised themselves under the Tanganyika Planters Association (TPA). The most popular small-scale growers' association was the Kilimanjaro Native Association (KNPA) which was registered in 1925 under the Indian 1912 Industrial and Provident Societies Act.

KNPA was not only the most popular and largest coffee growers' organisation in the territory. KNPA emerged out of friction with the colonial government in Tanganyika that championed and encouraged the natives on the foot of Mount Kilimanjaro and Pare Mountains, Arumeru district and as far as growers around Mount Kenya in Kenya.[26] KNPA emerged as a response to the settlers' challenge against the colonial authority support of small-scale growers to grow coffee which particularly intense from 1922 to 1925.[27] In extreme cases, the settlers threatened African growers that they would manoeuvre through the colonial authority to get them banned from growing coffee.[28] Such intimidations were

[25] Seimu, "Growth and Development of Coffee and Cotton Marketing".
[26] P.W. Westergaard. "Co-operatives in Tanzania as Economic and Democratic Institutions." In Widstrand, C.G. (ed.). Co-operatives and Rural Development in East Africa (New York: African Publishing Corporation, 1970), 124.
[27] Report on the Kilimanjaro Native Planters Association, Coffee Ordinance and Regulations Attitude of the KNPA, TNA 13060.
[28] Extract of an interview between the Acting Governor and settlers' representatives on January 25th 1934, TNA 11908/19.

techniques to thwart the growers from maintaining their economic autonomy. Clearly, the idea was that, if the growers abandoned coffee growing, they would be forced to cheaply offer their labour in settlers' plantations to earn an income.

The settlers also complained to the colonial authority of theft of which the key suspects were small-scale African growers.[29] The settlers were so worried that if this development goes unchecked it would result in the spread of diseases because African coffee growers lacked coffee farming expertise. Joseph Merinyo, who worked in the agriculture office, came across complaints over several intimidations of growers by settlers and informed Dundas, the then District Commissioner. Merinyo managed to convince Dundas to meet the growers. In 1922, Dundas met the growers to discuss the problem. Interestingly, an idea came out from a meeting to form an institution to protect their interest, by aping TPA. Soon after, KNPA was born and got Dundas' approval[30] and was registered in January 1925 under Section 26 of the provisions of the Indian Companies Act, 1913.[31]

[29] Iliffe, *Modern History,* 154.

[30] Provincial Commissioner, Northern Province, to CS, February 24th 1931, TNA 13060.

[31] R.J. M. Swynnerton, A.L. B. Bennett and H.B. Stent. *All about KNCU Coffee* (Moshi: The Moshi Native Coffee Board, 1948), 4; Minutes of the Inaugural KNPA's Meeting held on January 15th 1925.

From onset, the general objective of KNPA was to combat settlers' opposition to coffee growing by the small-scale growers.[32] Specifically, KNPA objectives were: first, to protect small-scale coffee producers from the settler community threats against farming of the crop. Secondly, since the colonial authority supported small-scale growers to grow coffee, it supported KNPA as a key player in facilitating the promotion and development of the industry among the small-scale growers.

In 1925, KNPA managed to influence the colonial government to grant it the monopoly over handling coffee produced by smallholders in Kilimanjaro. Such monopoly was provided under Section 15 of the *Native Authority Ordinance* (No. 18, 1926) that compelled all African growers in Kilimanjaro to sell their coffee through KNPA with effect from April 1st 1926.[33] Any person who contravenes any provision of these rules shall be liable to a fine[34] or imprisonment not exceeding one month.[35] The rules provided that:

a) All native coffee had to be sold through KNPA; and

[32] Swynnerton, Bennett and Stent, *All about*, 12–13.
[33] *Ibid.*

[34] A fine not exceeding 100/-
[35] North Province Commissioner to the Chief Secretary, May 3rd 1932, TNA 20378.

b) Members could sell their coffee otherwise than through any agent of the Association as they see suitable. But coffee sold to the agent must pass through the Association channels.

However, from 1926 some elements against KNPA began to emerge. The earliest opposition was led by the Moshi district Commissioner named Captain F.C Hallier. Such opposition was weak because the Provincial Commissioner maintained his support for KNPA. At a time, support by senior colonial government officials in the province for KNPA was crucial because KNPA was regarded as the most appropriate institution in guiding small-scale coffee industry. Moreover, the Association provided protection to growers from unscrupulous traders.[36]

However, support from colonial officials at Provincial level waned when KNPA opposed some of the colonial policies. For example, opposition against growers' coffee farms registration. [37] KNPA successfully challenged the measure to the territorial level and the colonial authority decided to withdraw coffee farms' registration exercise. Withdrawal of the exercise not only embarrassed but also infuriated district and provincial officials that had to plan for a retaliation against KNPA by playing cards that would lead to the

[36] Northern Province Provincial Commissioner to Chief Secretary, November 26th, 1928, TNA 13060.

[37] KNPA to SNA, October 6th 1928, TNA 12809.

disbandment of the Association.[38] The Provincial Authority mobilised all Chiefs to rally their support against the KNPA.[39]

When the attempt to disband the Association by the Provincial Commissioner was leaked, KNPA successfully managed to challenge it with support from the Chief Secretary. Again, this embarrassed and infuriated the Provincial Commissioner. The colonial authority as a whole turned against KNPA when its 'conspired' operate independently from colonial influence especially in determining foreign markets for its coffee. At this juncture, one allegation after the other like financial embezzlement, poor business management, bankruptcy[40] were well fabricated by colonial officials to justify its mission to dismantle KNPA.

These were not the only issues that KNPA raised as at one point, the Association successfully opposed attempts by the colonial authority to transfer land to Kenya so settlers could alienate it. Such an attempt was viewed by KNPA leadership as necessary to protect its members and the native coffee industry. Obviously, the colonial authority saw the Association as time went by a threat just for defending the

[38] Government of Tanganyika (1928): Annual Territorial Report. London: Her Majesty's Stationary Office, appendix I, paragraph 11.
[39] KNPA to the CS, October 23rd 1928, TNA 12809.
[40] Sessional Paper no. 4, 1937, 6, TNA 263034.

interest of growers. Of course, keeping it longer could endanger colonial interests and likely spark serious political challenges. Therefore, the option was to get rid of it.

As a thought of replacing KNPA was gaining momentum, a forum was built to promote co-operatives in the territory and to legitimise demise of KNPA. One of the forums was the District Officers and District Administrators conference by the Secretary for Native Affairs in October 1929 in Dar es Salaam to discuss promotion of co-operatives in the country. With the colonial officials in Tanganyika lacking expertise on how to promote and managing the co-operatives, the agenda discussion could not yield concrete measures. A glim of hope over the agenda rose in 1930 when the Colonial Office wrote a memorandum for promotion of co-operatives to facilitate handling of small-scale growers' crops and protecting them powerful merchants and companies.[41]

The CO's memorandum was important to the colonial state as it provided a ground for laying down plans for promotion of co-operatives and eventual replacement of KNPA. Tanganyika expressed its desire and commitment to promote co-operatives in line with CO's memorandum which was approved during the 1930 British Colonial Governors conference.[42] Emboldened by the governors' resolutions, the colonial authority of Tanganyika asked the CO to send an

[41] CO Memorandum: Co-operation in the Colonies, Protectorates and Mandated Territories, May 21st 1930, TNA 13698.
[42] *Ibid.*

expert, Mr. C.F. Strickland to help in drafting the co-operative legislation that would facilitate for registration of co-operative societies.[43] On arrival in Tanganyika, Strickland worked along with the colonial government's appointed committee members that consisted of civil servants. It was after a series of meetings that the attributes of the Registrar and a place to locate the co-operatives department were agreed.[44]

The CO and Tanganyika's colonial authority presented to Strickland terms of reference to consider when drafting the law.[45] The terms of reference among others highlighted a roadmap to overhaul coffee marketing in Kilimanjaro,[46] of which KNPA had a monopoly. The terms and discussion between the colonial authority and Strickland revolved around having a suitable mechanism in place that would

[43] CO Telegram No. 252, December 1930, TNA 13698; Some scholars have argued that Strickland was a government but not the architect of co-operative law. As archival records depict, that argument is untenable. See such argument in [43] Susan G. Rogers. "The Kilimanjaro Native Planters Association: Administrative Responses to Chagga Initiatives in the 1920's." *Transafrican Journal of History* 4, no. 1/2 (1974): 94–114. http://www.jstor.org/stable/24520201.

[44] Extracts from P.E. Mitchell report on conversation with C.F. Strickland on organisation of co-operative societies in Tanzania held on March 23rd 1931, TNA 19005.

[45] Telegram No. 252 from the Governor to Secretary of State for the Colonies, December 1930, TNA 13698.

[46] Telegram No. 252 from the Governor to Secretary of State for the Colonies, December 1930, TNA 13698.

pave a way for the replacement and side-lining of the Association by ensuring that growers compulsorily market their produce through co-operative societies.[47]

Whereas Strickland concentrated on writing a legislation draft, the civil servants who were assisting him were writing a report. The report recommended that "the advance of Africans through co-operative societies will be only achieved by placing them under guidance and supervision of a trained officers."[48] It was also recommended that, the control of the native co-operatives by the Registrar or Director of Co-operative Societies.[49] The committee proposed a new structure different from that of KNPA of which coffee buying posts had to be setup within villages across the Mountain.[50] It also reduced the size of affiliated societies to the level of one or two villages. Finally, it stressed on the employment of qualified Registrar of co-operative societies.

When the CO received the legislation draft from Tanganyika, it asked Tanganyika not to table it at the LEGCO based on

[47] Telegram No. 252 from the Governor to Secretary of State for the Colonies, December 1930, TNA 13698; Pennington Report, TNA 13060/203-234.

[48] Extract from a report of a committee appointed to consider the marketing organisation of native and non-native produce, Application of Co-operative Methods in Economic Development of the Territory, TNA 19005.

[49] Extract from a report of a committee appointed to consider the marketing organisation of native and non-native produce, TNA 19005.

[50] Provincial Commissioner, Northern Province to CS, August 25th 1931, TNA 26038.

the recommendations made by the committee. The Secretary State for the Colonies, Sidney Webb (Lord Passfield), recommended further that, the Tanganyika colonial authority should not embark upon promotion of co-operatives until when the Registrar of co-operative societies was available to facilitate guidance to co-operatives'.[51] However, a dramatic development occurred in August 1931 when Lord Passfield was replaced in the Colonial Office following the defeat of Labour Party by the Conservatives in the general election. The Conservatives appointed Sir Phillip Cunliffe-Lister (later Lord Swinton) to replace Lord Passfield as Secretary of State for Colonies. Tanganika's colonial state capitalised on departure of Lord Passfield by re-lodging for the approval of the co-operative societies' legislation.

In her work, Roger narrowly focuses on the transfers of the local colonial officials as the main factor. This paper goes beyond that. It associates how significant the political changes in Britain became advantageous to Tanganyika in revitalizing pressure to the CO to approve the co-operative legislation. Moreover, Roger suggests that, the new senior staff were ignorant of the matter. On contrary, the retrieved archival records reveal that, Douglas James Jardine, who was Deputy CS (1927–29) and P.E. Mitchell the CS (1928–1934), were well aware of the matter. For instance, Jardine as the

[51] Passfield to Governor, Dispatch No. 507, July 22nd 1931, TNA 13060.

acting Governor with advice from Mitchell had written the CO to consider "the early enactment of a co-operative draft submitted in the dispatch No. 372 of April 23rd 1931".[52] In asking for approval, Jardine argued his case against KNPA by writing that they have "to discontinue incorporation of KNPA as a company in accordance with the amended provisions of the *Companies Ordinance* (No. 46 of 1931) because it does not appear to be practicable and it is quite clear to me that the correct course is formally to constitute the enterprise as a co-operative society."[53]

The Governor argued further that, to approve the implementation was important and it was in favour of the prosperity and development of the co-operative movement.[54] The governor emphasized further that, once KNPA was discontinued it would constitute correct course to formally initiate such enterprises as co-operative societies in Kilimanjaro.[55] Sir Phillip Cunliffe-Lister, the new Secretary of State for the Colonies was convinced on reading Governor's arguments and he eventually approved the *Co-operative Societies Ordinance of 1932* in May 23rd 1932. Upon the *Ordinance* approval, the colonial authority acted immediately.

[52] Governor to the Secretary of State for the Colonies, November 20th 1931, TNA 13060.
[53] *Ibid.*
[54] *Ibid.*
[55] *Ibid.*

As attempts to get *Ordinance* approval were underway and hopes high, the colonial state was interfering with KNPA. The Governor appointed A.L. Pennington to take over management of the Association.[56] It was the moment when KNPA President, Joseph Merinyo, was removed from office on misconduct grounds. When in office, Pennington established that KNPA was in poor financial situation generating an impression among KNPA members and committee that an urgent rescue mission of the Association was necessary to rescue it from collapse. Consequently, Pennington recommended to KNPA leadership, members as well as to the colonial state that, with existing conditions, it was wise to 'restructure' the Association. The members were informed about the idea which they agreed in an extraordinary meeting of October 21st 1931 chaired by Moshi District Officer, Mr. A.O. Flynn.[57]

The landmark replacement of KNPA was the setting up of the Kilimanjaro Native Co-operative Society Ltd (KNCS) on May 30th 1932 by colonial officials of which Pennington and A.O. Flynn were responsible.[58] Thus, KNCS became not only a new co-operative society but also the first organisation

[56] Provincial Commissioner Northern Province to CS, September 3rd 1930, TNA 12809.
[57] Governor to Secretary of State for the Colonies, November 20th 1931, TNA 13060.
[58] *Uremi*, No. 2, June 1932.

named 'co-operative' in Tanganyika. KNCS was formed without the Colonial Office consent. Apparently, the CO was and the LEGICO were ill-advised over the intention to have the co-operative *Ordinance* that was basically aimed at restructuring KNPA.[59]

Upon creation of KNCS, KNPA's members and membership was automatically transferred to the KNCS.[60] The transfer of members to KNCS signified a step toward the demise of KNPA. As KNPA lost all its members, it became a technically null and void as it was forced to cease trading and dispose of its assets and liabilities to KNCS. Furthermore, Mr. Arthur Leslie Brice Bennett was hand-picked by the colonial authority to manage KNCS as manager with effect from May 30th 1932.[61] The appointment of Mr Bennett signified the control of the organisation by the colonial state. In a letter Colonial Office, the Governor said that 'the future of the Association is now, I hope, assured'.[62]

The understanding to 'restructure' KNPA is widely shared and maintained to date by a number of studies on co-operative development in Kilimanjaro or Tanganyika. But the fact is, KNPA was neither restructured, reorganised nor disbanded but it was replaced, a case that this paper

[59] Governor to Secretary of State for the Colonies, November 20th 1931, TNA 13060.
[60] *Uremi*, No. 2, June 1932.
[61] Governor to Colonial Office, November 20th 1931, TNA 13060.
[62] Governor to the Secretary of State for the colonies, November 20th 1931, TNA 13060.

enlightens and corrects from previuos persistent historical distortion. In that effect, KNCS take over the functions of KNPA was a politically expedient solution. Under such conspiracy, the transfer of functions was underway.

The approval of the legislation by the CO gave the colonial state powers to appoint the Registrar of co-operative societies for the territory. This was not the only case that demonstrated the colonial state's determination to control cooperatives. To attain the legislation approval, CS Jardine appointed Acting Registrars of Co-operative Societies on 4th March 1932. The urgency was also reflected at local level in Moshi District by appointment of A.O Flynnas as Assistant Registrar of co-operatives. Both appointments were provided for under Government Notice No. 61 of 1932 issued on 4 March under Section 3 of the *Co-operative Societies Ordinance* of 1932. Mr. A.O. Flynn facilitated the formation and registration of the KNCS affiliated primary co-operative societies that completely cleared out all KNPA bases and influences[63] (see Table 1 below).

[63] Memorandum on the working of the co-operative societies' ordinance, November, 1934, TNA 19005.

Table 1: Registered Co-operative Societies and membership

S/No	Name of the Society	Date of registration	Reg. No.	Members in 1935
1	Kibong'oto	1.1.1933	1	441
2	Machame Lyamungo	1.1.1933	9	5057
3	Kibosho West	1.1.1933	8	920
4	Kibosho East	1.1.1933	7	2,045
5	Uru East	1.1.1933	14	1,299
6	Mbokomu	1.1.1933	6	392
7	Old Moshi	1.1.1933	5	852
8	Kirua Vunjo West	1.1.1933	4	2385
9	Kilema	1933	3	1589
10	Marangu West	1.1.1933	20	892
11	Marangu East	1.1.1933	18	900
12	Mamba	1.1.1933	2	1225
13	Mwika West	1.1.1933	21	1345
14	Uru West	1933	14	646
16	Keni Mriti	1933	15	623
18	Mwika East	1933	17	855
19	Mwika West	1933	21	460
20	Mwenge	1933	22	335

Source: *Uremi*, No. 15. November 1st 1933.

An analysis provided above emanated from the colonial authority's policy as well as political decision. Such a decision had far-reaching implications in the control of growers and their produce by the colonial authority. The very decisions shaped the Tanganyika's co-operative development during interwar years. Such developments were demonstrated by having KNPA replaced.

Rogers argued that the colonial authority in the territory facilitated killing of KNPA.[64] However, the argument raised by Roger provides a political move. Legal dimension that facilitated demise of KNPA have not been considered. This paper has established that, specific clauses, in particular, Section 36 (Subsect. i. & ii.) of the *Ordinance* were applied. The clause directed that all agricultural producers should be sold through one agency or co-operative society. Since Section 36 (i) of the *Ordinance* compelled growers to sell through the co-operative societies, KNPA deprived of its members and coffee business was curtailed. Subsection ii. of the *Ordinance* that provided for compulsory co-operatives membership.

The application and enforcement of the Section 36 (i) implied that KNPA would not handle coffee on the foot of Mount Kilimanjaro and the Pare Mountains where it had members since 1925. Such a function was handed over to KNCS, and later transferred to KNCU when it was registered in 1933. Again, coffee growers in the Pare Mountains were no longer beneficiaries. This development marked a final blow to KNPA as it was divested revenue by denying its engagement in marketing coffee. Also, growers in the Pare Mountains were deprived of co-operative society

[64] Susan G. Rogers, "The Kilimanjaro Native Planters Association".

membership. Such a decision partly undermined the chances for the coffee growers in the foot of Mount Kilimanjaro to voluntarily become members of co-operative society.

3. Co-operatives Intervention and Its Implications

Soon after the legislation of *Co-operative Ordinance*, the colonial state was preoccupied with appointment of permanent Registrar of co-operative societies. Some of the outlined qualifications of the Registrar were familiarity with Tanganyikan culture and experience in civil service of not less than four years. The challenge was to earmark an officer with such desired attributes. As such, the CS contacted the Central, Lake and Tabora Provincial Commissioners to propose a suitable candidate for the position.[65] The Central and Lake Provinces had no suitable candidates. The Western Provincial Commissioner proposed Mr. Ronald Cecil Northcote who was immediately appointed by the Governor to fill the position and the CO was updated over the appointment. [66]

As none of the colonial civil servants in the country had co-operative management knowledge or training, Tanganyika

[65] CS to Central PC, September 9th 1930; CS to Provincial Commissioner, Lake Province, September 9th 1930; CS to Tabora Provincial Commissioner. The provincial commissioners responded to CS in Provincial Commissioner, Central Province to CS October 6th 1930; Provincial Commissioner, Lake Province to CS, October 9th 1930. All of them have been retrieved in TNA 19005.

[66] Tabora Provincial Commissioner to CS, October 9th 1930; Governor to CO, April 23rd 1931, TNA 19005; Governor to CO, July 3rd 1931 TNA 19005,

sought to have the prospective Registrar receive appropriate training abroad. Sri Lanka and Malaysia were identified as suitable destinations given many years of experience in agricultural marketing.[67] Tanganyika contacted Sri Lankan and Malaysian colonial governments as well as the Horace Plunkett Foundation asking for some guidance associated with managing co-operative societies. Tanganyika sought the guidance because plans were underway to "establish co-operatives in primitive and ignorant societies."[68] It was reiterated further that "our problem is rather to harness co-operation as to influence an experience that proved successful in South America among the Negro."[69] It is fair to interpret that the colonial state believed that it was fulfilling its civilization mission through establishment and control of co-operatives in Tanganyika.

Lacking funds, Tanganyika could not immediately send Mr. Northcote for training. An application for the funds were made to the Colonial Office.[70] The Colonial Office had no funds too, and suggested postponement of the study tour.[71] In 1932, Tanganyika made more applications in 1932 to the

[67] CO's Memorandum on Co-operation in the Colonies, Protectorates and Mandated Territories, (H.M.S.O, May 21st 1930), TNA 13698.
[68] CS to Plunkett Foundation, November 21st 1930, TNA 13698.
[69] SNA to Sir Charles Campbell Woolley (Sri Lanka), December 6th 1929, TNA 13698.
[70] CS to Provincial Commissioners, November 18th 1930, TNA 19005.
[71] CO to CS, Dispatch No 507, July 22 1931. TNA 19005.

Carnegie Foundation which was accepted.[72] However, funds were made available from August 1934 to April 1935 to facilitated Northcote's study tour to India, Burma, Zanzibar and Sri Lanka.[73]

On his return in May 1935, Mr. Northcote published a report which had key policy issues as well as technical recommendations associated with administrative machinery for managing the co-operative organisations in the country.[74] Some of the recommendations provided a clear direction for co-operative development, proposed types of co-operatives (credit, dairy, livestock and tertiary apex body) and setting up of the Co-operative Department. Northcote was critical of Section 36 (Subect. i & ii) of the 1932 *Co-operative Ordinance*. Noteworthy, he challenged the two provisions of the legislation because were against co-operative principle and voluntary association.

Northcote's criticism came at a wrong time when the government official's mind and policy was not the same as when he was appointed. Such criticism featured in neither Lord Hailey's work nor Campbell's report.[75] Moreover, senior

[72] CO to the Governor, January 23rd 1933, TNA 19005.
[73] Phillip Cunliffe-Lister, (the Secretary of State for the Colonies) to CS, September 29th 1934; CS to all Provincial Commissioners, October 28th, 1936 TNA 22929.
[74] *Ibid*.
[75] See in Lord Hailey, *An African Survey: A Study of Problems Arising in Africa South of Sahara*, (London: Oxford University Press, 1938), 1467; and W.K.H. Campbell's Report of Visit to Tanganyika, July 29th 1944, TNA 35783

colonial officials who supported him had been transferred. P.E. Mitchell, who was the Secretary for Native Affairs and CS, for instance was appointed Governor of Uganda in 1935 and later Kenya. Tanganyika had new Governor, Sir Harold McMichael, and the acting CS W.E. Scupham in 1935. These new officials were irritated by such criticism. For example, the acting CS, Gerald Fleming Sayers, was sceptical about co-operative policy and pointed out that the government had no doctrinaire or predilection for co-operatives and had no wish to impose it on anyone.[76]

The CS viewed Mr. Northcote report as racially biased as he argued that, the government cannot accommodate "any group, European, Asiatic or African, and would not set up Co-operative Department because nothing of that kind (whatsoever) is needed, at any rate unless there is a genuine local desire on the part of anybody".[77] On contrary, the CS was in favour of the spontaneous growth of co-operatives instead of government intervention and support. In 1935, the Central Province Commissioner invited Northcote in his Province to initiate creamery co-operatives.[78] To prove that the senior officials of Tanganyika were displeased by Northcote's report, his invitation was put on hold by the CS

[76] CS to all Provincial Commissioners, October 28th, 1936, TNA 22929.
[77] C.F. Sayers to all Provincial Commissioners, October 28th, 1936; Extract Minute from CS to the Governor, May 23rd 1935, TNA 22929.
[78] Central Province, PC to CS, June 14th 1935, TNA, 22929.

who authoritatively disclaimed any attempt for co-operation or any official to wish to urge it on anyone.[79] The CS emphasised that was the government position and could not change unless an approval from the CO was granted.[80]

CS also stressed that, could accommodate co-operatives that emerge spontaneously out of the growers' interest.[81] It is important to be noted here that, historically, spontaneous growth of co-operatives was possible in Europe its pioneers commandeered high levels of exposure. The condition set out by CS was unrealistic in Tanganyika where growers lacked the Rochdale and Raiffeisen co-operative exposure and majority of them were illiterate. Such development was a challenge in Tanganyika and many other British colonies in Africa as argued by Strickland that "it appears that co-operation is almost unknown in tropical Africa". [82]

The decision by the CS was an obstruction over co-operatives from within the colonial government. It also marked a significant political and policy shift against promotion of co-operatives. This ended the enthusiasm shown in the late 1920s and early 1930s. The CS's obstruction affected development in many other localities in the country. Moreover, his decision was also adopted by many other officials at departmental and provincial levels. For example,

[79] CS to all Provincial Commissioners, October 28th, 1936, TNA 22929.
[80] CS to all Provincial Commissioners, October 28th, 1936, TNA 22929.
[81] CS to all Provincial Commissioners, October 28th, 1936, TNA 22929.
[82] C. F. Strickland. "Co-operation for Africa." *Journal of the International Africa Institute* 6, No. 1 (1933), 15-26, TNA 24870.

when the Registrar of Co-operative Societies, Mr. Northcote, recommended promotion of co-operatives in Kagera in mid-1936[83], it was outrightly rejected because the colonial authority feared opposition from Arabs and Asians who had a stake in coffee marketing.[84] They feared that such direction could generate political unrest.[85] Such decisions had far-reaching impact for stunted growth of the AMCOs in the country and where developments existed the footprint remained limited to three localities, that is, on the slopes of Mount Kilimanjaro, Ngara and Ruvuma.

4. The AMCOs' Promotional Approaches

A study by Margaret Digby discusses the growth and development of agricultural co-operative movement in the commonwealth.[86] But her study fails to illuminate the colonial policy and political intervention aspect in Tanganyika. In this work, we have uncovered how political and policy shift by new colonial officials was against promotion of co-operatives and had far-reaching consequences in Tanganyika. It has presented an account of ups and downs of spontaneous and premeditated promotion

[83] A report on Bukoba Coffee Marketing, TNA 141011.
[84] DA to CS, November 28th 1936, TNA 141011.
[85] Bukoba District Officer to Provincial Commissioner, April 15th 1937 and July 9th 1937, TNA 141011.
[86] Margaret Digby *Agricultural Co-operation in the Commonwealth*, (Oxford: Blackwell, 1953), 147-150.

approaches of AMCOs. KNPA rise a product of spontaneous approach from below. KNCS was a brainchild of planned and statist approaches. The latter approach was objected by CS of Tanganyika government following the report of Northcote in 1935.

The CS's objection was also communicated to the CO by indicating his reluctance to have co-operatives promoted from above. Part of his dissatisfaction read: "to be frank, Northcote's report was disappointing and contained some extraordinary opinions to which the government could not subscribe".[87] The CS was critical of the report because it was biased and paid no attention to non-natives especially, Europeans and Indians. It inclined too much on natives that he feared it would fuel misunderstandings. CS also demonstrated his political and policy position beyond Tanganyika borders by communicating to the Carnegie Foundation that funded Northcote study tour asserting that, the report "contained a good deal of theoretical matter and contentious nature that the government cannot subscribe".[88] Additionally, the CS disregarded the setup of the Department or Organization to deal with co-operation as the government would not allocate resources for that. He stressed further that, Northcote would only be able to act in a consultative capacity, mainly to advice when a genuine local desire for co-operation emerged and that all co-

[87] CS to Carnegie, September 12th 1935, TNA, 22919.
[88] *Ibid*.

operatives matters should be finally sent to CS office for approval.

With CS position, Northcote training fund was a waste as the government withdrew support to promote co-operatives. The CS opted to disagree with technical expertise provided by the Registrar and, demonstrate policy inconsistency as well as lack of political commitment to promote co-operative societies by senior colonial authorities in Tanganyika. This approach placed the Registrar's responsibility to promote co-operatives in Tanganyika into jeopardy and difficulties that led to uneven development throughout interwar years. Lord Hailey termed this development merely as 'hesitancy'.

This work posits that, senior colonial officials coldshouldered any support for development of co-operatives. The refusal was a significant policy shift. This is demonstrated in new evidence showing that when Jardine, then acting governor, visited Lake Province in October 1933 insisted that this should be considered when staff were available for the purpose.[89] However, his promise never accomplished in the Bukoba district, Southern Highlands and Central Provinces where interest in forming co-operatives was high. Unlike Kilimanjaro, Jardine showed no

[89] TNA 19005, Extracts of notes taken on HE's safari in October 1933 in Lake Province.

interest in either appointing or assigning civil servants on a short-term basis at district level. To fill the void, some district commissioners (DCs) decided to promote co-operative societies in their districts. For example, in Biharamulo District initiatives were made by the DC at the end of December 1933.[90] Sadly, the governor maintained his biased position even at the East Africa Governors' conference. For him, promotion was to be restricted and confined within Kilimanjaro and that other areas had to wait until a trained Registrar was available.[91] This was not accidental position: the governor was responding to the rivalry between the European settlers and African peasants who produced coffee for export market in the Northern Province, especially in slopes of Mount Meru and Mount Kilimanjaro.[92]

The territorial slowness and disinterest in developing co-operatives in Tanganyika influenced district and provincial officials to act in their own over the areas they controlled. One of the attempts made in May 1932 by Chief Mgemela of Bakwimba in Kwimba District.[93] Chief Mgemela interest came during the economic depression when cotton price was

[90] TNA 19005, DO, Biharamulo District to CS and SNA, 22 December 1933.
[91] Extracts from a paper by the Governor of Tanganyika presented at the East Africa Territories Governors' conference, April 1932.
[92] See Iliffe, *Modern History*, 316, 455.
[93] Extracts from meeting between P.M. Huggis, the DO of Kwimba and Chief Mgemela, May 20th 1932, TNA 20999; Iliffe, *Modern History*, 295.

very low and, in some cases, barter trade affected income of its subjects. Again, a plan to build a hospital in his Chiefdom could not materialise because the government withdrew the plan due to lack of funds.[94] For him, co-operatives offered a solution to the two difficulties. Chief Mgemela envisioned co-operatives that would improve their income.[95]

Iliffe points out that, the reasons for Chief Mgemela "unsuccessful proposals are not clear".[96] Mgemela's proposal was unlikely to succeed because, it can be argued here, firstly, the co-operative legislation was yet to be approved by the Colonial Office. Secondly, the territorial policy at the time was against promoting co-operative societies except in Kilimanjaro. It is important to note that the District commissioner did not obstruct Chief Mgemela's proposal as he forwarded it with positive remarks to the Provincial Commissioner.[97] The Provincial Commissioner too forwarded favourably to the CS for the approval.[98] However, the CS was against it and cautioned that "if the society is

[94] District Commissioner, Kwimba to Lake Province, Provincial Commissioner, May 30th 1932, TNA 20999.
[95] Extracts from meeting between P.M. Huggis, the DO of Kwimba and Chief Mgemela held in May 20th 1932, TNA 20999.
[96] Illife, *Modern History*, 295.
[97] District Commissioner, Kwimba to Provincial Commissioner, Lake Province, May 30th 1932, TNA 20999.
[98] Provincial Commissioner, Lake Province to the CS, June 24th 1932, TNA 20999.

allowed, it must progress with care, and with great care without conflict among the members of the Chief".[99] The CS declined the proposal by stressing that, "it is not therefore, possible to contemplate the immediate registration of co-operative societies in Kwimba or anywhere else with exception of KNPA with whose peculiar circumstances you are no doubt acquaintance".[100] The colonial state was all along suspicious of institutions that were founded by natives as in the case of KNPA, which on a number of occasions challenged colonial policies.

While Chief Mgemela's request and responses from the CS were still fresh, A.A. Wills law firm presented a new proposal, on behalf of the BCGA, and noted that "the idea of co-operatives and ginning was tickling in the minds of some of Natives".[101] The idea was strongly rejected by the Secretary for Native Affairs (SNA) who pointed out that "time to accommodate them (co-operatives) was not ripe".[102] The SNA reacted at a time when co-operative legislation had an approval of the Colonial Office. The rejection of both Chief Mgemela and the BCGA attempts by the colonial authority demonstrates clear evidence that there was an unsupportive environment for growth and development of co-operatives

[99] CS to Provincial Commissioner, Lake Province, July 19th 1932, TNA 20999.
[100] CS to Provincial Commissioner, Lake Province, July 19th 1932, TNA 20999.
[101] A.A Wills to SNA, July 12th 1932, TNA 21032.
[102] SNA to A.A Wills, July 25th 1932, TNA 21032.

long before Northcote's report. Similarly, an attempt to promote co-operatives in Bukoba district where coffee was grown earlier as in Kilimanjaro and much earlier than in Ngara district was affected during the interwar years.

During the 1930s the colonial officials in Bukoba district experienced a number of challenges associated with small-scale growers' coffee industry. Some of the challenges were that coffee was grown without proper attention, trees were exposed to diseases and pest risks, growers processed poorly the coffee beans hence affecting their quality.[103] As a result of the poor coffee quality beans, foreign buyers lost interest and those who kept on buying paid poor prices.[104] This led to the decline in government revenue prompting the Provincial authority to intervene by inviting Mr. Northcote, the Registrar of Co-operatives, to investigate the challenges and recommend how best the marketing can be conducted in 1936.

Mr. Northcote met provincial and district officials as well as local chiefs, growers and traders. He also had an audience with leaders of the native embryonic (unregistered)

[103] C. Harvey (undated) 'Coffee Cultivation in Bukoba', TNA 11969/19 Vol. II; Illife, *Modern History*, 282; Charles D. Smith. *Did Colonialism Capture the Peasantry: A case Study of the Kagera District Tanzania* (Uppsala: Scandinavia Institute of African Studies, 1989), 19 – 20.
[104] Harvey, *Ibid*.

organisation, the Native Growers Association (NGA) under the leadership of Herbert Rugazibwa as President, and Clemens Kiiza as Secretary. Mr Northcote established that NGA was operating as a co-operative society and that it bulked its 970 members coffee from Kianja, Ihangiro, Kiziba, Kiamtwara, Kinyangereko, Bugabo, Misenyi and Karagwe chiefdoms.[105] By 1936, NGA's members produced and marketed an average of 156 tons of coffee.[106]

Mr. Northcote learnt that the NGA was financially weak, lacked some business skills and was facing competition from Indian coffee merchants.[107] Mr. Northcote saw the NGA potentiality and recommended "the Associations should be encouraged with concomitant formation of a co-operative society".[108] He added that, NGA required business expertise and recommended the Association be considered for £500 loan as business capital, and envisioned that it could be transformed into a co-operative society. [109]

Nonetheless, the provincial officials were not in favour of the NGA. This was evident when the Provincial officials opposed the recommendations. In one instance, the Provincial

[105] R.C. Northcote, Inquiry Report on Bukoba Coffee Industry in Report on Bukoba Coffee Marketing, 1936, 28, TNA 24545.
[106] Provincial Commissioner, Lake Province to CS, July 6th 1936, TNA 41011.
[107] R.C. Northcote, Inquiry Report on Bukoba Coffee Industry in Report on Bukoba Coffee Marketing, 1936, 28, TNA 24545.
[108] *Ibid*.
[109] Report on Bukoba Coffee Marketing, TNA 24545.

Commissioner, Mr C. MacMahon, disapproved the NGA's funding proposal because "that will be simply throwing money away".[110] MacMahon was sceptical about promotion of NGA as he feared that it would create political and racial tension in Bukoba if it was allowed into coffee marketing monopolized the Asian traders. At territorial level, The Director of Agriculture opposed NGA because "co-operatives would threaten livelihoods of Arab and Indian traders; thus, introducing them may lead to the eruption of riots".[111] On the other hand, the Indians dominated the Chamber of Commerce and were lobbying the colonial state to disregard the promotion of co-operative marketing societies like NGA in Bukoba.[112]

The disregard of the recommendations lacked viable alternatives too. This came at a time when the NGA through its members' contributions imported a hulling plant for coffee processing which was installed in Mbatama village.[113] A new hulling machine was to address years of using wooden huller and outcrops in coffee beans processing.[114] However,

[110] Report on Bukoba Coffee Marketing, TNA 24545.
[111] Director of Agriculture to CS, November 28th 1936, TNA 24545.
[112] Extracts from Resolutions the Chamber of Commerce Conference held in Tabora Easter, 1935, TNA 19005.
[113] R.C. Northcote, Report on Bukoba Coffee Marketing, TNA 24545, 9
[114] C. Harvey (undated), Coffee Cultivation in Bukoba, TNA 11969/19 Vol. II.

its license was withdrawn by the government in 1939 as its leaders were the ring leaders in the protest against the 1937 colonial coffee rules that seemed to subjugate small-scale growers' coffee industry in Bukoba.[115] This demonstrates three things. First, the colonial officials and administrators never tolerated any organisation that seemed a threat to its presence in the territory. Second, it indicates how colonial official were in contestation against themselves in identifying the best approach of developing co-operatives. And thirdly, it indicates how the officials used the racial card to favour the Asians at the expense of the African natives and their co-operatives, thus denying their interests and voices.

Albeit all fetters to promote co-operatives from below and above the Tanganyikan colonial society, a number of co-operatives were formed. Some of agricultural marketing co-operative societies were formed in 1936 included the Bugufi Coffee Co-operative Society (BCCS) in Ngara district that handled coffee; and the Ngoni-Matengo Co-operative Union in Songea district. The BCCS was registration number was 28 whereas NGOMAT was number 27. NGOMAT, unlike BCCS had several affiliated societies in Songea district that handled not only coffee but also tobacco.

[115] Provincial Commissioner, Lake Province to CS, December 22nd 1937, TNA 24545.

However, the BCCS and NGOMAT, like the KNCU, did not emerge spontaneously. The colonial officials in Ngara district and Ruvuma region were behind their promotion with an approval of the superiors in Dar es Salaam. The initiatives of this nature enjoyed support not only from colonial officials in Tanganyika but also from Britain as they complied and met the obligation in encouraging small-scale growers to produce best coffee and tobacco in their areas. They were also encouraged because there were either little Asian involvement or European producers who would have seen the Africans posing a threat in their interests.

In the registration of NGOMAT and its affiliated societies in 1936, the Department of Agriculture played a critical role[116] (see Table 2). By 1936, NGOMAT registered 6,640 members, and by 1939 NGOMAT had 6721 members.[117]

[116] Northcote to J.D Rheinallt Jones, the Director of South African Institute of Race Relations, December 11th 1944 in TNA 37192; Tanganyika Government. Report on Co-operative Development (Dar es Salaam: Government Printer, 1947), Appendix 1-6

[117] Report to the League of Nations on Tanganyika Territory, 1939, TNA 5/243.

Table 2: Primary societies affiliated to the NGOMAT

S/N.	Society	Number of Members
1	Liula	438
2	Litola	377
3	Msindo	354
4	Matogoro	263
5	Mbinga	170
6	Lumecha	163
7	Gumbiro	122
8	Lipumba	116
9	Ndirima	92
10	Likuyu	81
11	Namtumbo	65
12	Mlali	44

Source: TNA 504, Co-op/27/II, Annual Report for 1937/38, Ngoni-Matengo Cooperative Marketing Union, Ltd.

The formation of co-operatives in Ngara and Songea was justifiable given increased volume of the produce that required a reliable market to encourage growers to keep on producing and to evade smuggling of coffee to Burundi and Rwanda. Under the coffee marketing compulsion, growers were compelled to join the BCCS through coffee handling posts that were set up in 4 locations of which their number and respective villages are shown in Table 3.

Table 3: Coffee Buying Posts in Bugufi

Buying posts	Number of Members
Mukarahe	721
Mususenga	1451
Ngudusi	1200
Mwivusa	1013

Source: TNA 23556: Bugufi Coffee Society

The local colonial officials used the narrative of enhancing self-reliance among growers in their quest to justify establishing and promotion of co-operatives in Ngara and Songea. They went further to offer guidance in managing them. The expenses to form societies were borne by co-operative members in the form of a loan from the Colonial Development Fund (CDF). In Songea, £2,000 loan was provided by the CDF for setting up NGOMAT.[118] The loan had 3.5% interest rate per annum and was set to be paid by 1940.[119] The loan was considered as a motivation for encouraging small-scale growers to produce tobacco and provide them with marketing facilities of their produce. Similarly, the CDF made available £3,000 at 3.5% interest rate per annum to the BCCS to facilitate its formation.[120] This loan was used as capital for purchase of coffee, storage facilities and house for managers. In true terms, this colonial paternalism over co-operatives in Ngara and Songea was influenced by the desire to improve produce quality and control smuggling crops outside Tanganyika in order to improve their coffers.

[118] Tanganyika Government. Report on Co-operative Development (Dar es Salaam: Government Printer, 1947), Appendix 1- 6, TNA 37192.
[119] Report to the League of Nations on Tanganyika Territory, 1939, TNA 5/243.
[120] Minute, Northcote to CS, May 6th 1935, TNA 22919.

In the same period, the Southern Highlands Provincial Commissioner applied for a grant amounting to £5,660 from the CDF to promote co-operative coffee and rice marketing societies in his Province, particularly in Mbozi and Rungwe districts.[121] To achieve this, the provincial and district officials as well as the Native Authority indicated £2,600 was presented as their contribution for Mbozi and £3,377 for Rungwe that was available for construction of crops' storage facilities and purchase of equipment for the planned co-operative societies. Nine (9) groups were earmarked for transformation.[122] The Commissioner made further justification for loan application to form co-operatives by arguing that such a grant would confer a great benefit since it would ensure the future economic prosperity of the natives and would stimulate trade in general by increasing their spending power.[123] Additionally, it was argued that, the province had no other method of acquiring the necessary capital other than a grant or a loan from the CDF. [124]

The Colonial Office rejected the application of grants for such purpose but it had some funds that could be provided as a loan.[125] The Provincial and district officials as well as NA

[121] Provincial Commissioner, Southern Province to CS, March 20th 1936, TNA 22983.
[122] Provincial Commissioner, Southern Province to CS,
[123] *Ibid*., Provincial Commissioner, Southern Province to CS.
[124] Provincial Commissioner, Southern Province to CS, February 18th 1946.
[125] CS to Provincial Commissioner, South West Highlands, August 31st 1937, TNA 22983.

were highly motivated and well prepared to ensure that formation of co-operatives was successful. Despite unveiled financial commitment by the provincial, district officials and NA, the CO was not prepared to provide the grant requested unless it is a loan. When they applied for the loan they were denied too. It was argued that KNCS was founded without external support.[126] As such, the provincial and district officials were asked to generate funds locally that would facilitate promotion of co-operatives for Rungwe and Mbozi. As a result, no co-operative society was formed in the 1930s in Tanganyika's South West Highlands Province.

The grant and loan rejection did not discourage the colonial officials. They carefully considered some options, among which the best was engaging the Native authority. To achieve this, it was decided to create a Suspense Account provided under the Native Authority to facilitate rice handling and accounts to handle coffee.[127] These accounts had two objectives. First for accumulation of savings to promote co-operative societies and second, they were treated as temporary measure to facilitate purchase crops pending the transformation and preparation of growers into fully-fledged co-operative societies.[128] The Provincial

[126] *Ibid.,* CS to Provincial Commissioner, South West Highlands, TNA 22983.
[127] Provincial Commissioner, Southern Province to CS.
[128] Extract from Proceedings of all Provincial Commissioners, TNA 22997.

Commissioner also showed interest to promote coffee marketing in Rungwe and Mbozi clustered in nine (9) groups which for coffee were Undali, Kiwira, Masebe, Masoko, Manow.[129] There were also rice-marketing groups in Selya, Mbozi, Mwakaleli East and Mwakaleli West. These groups had to be formed following the failure to register co-operative societies in the 1930s to market growers produce.

5. Conclusion

During interwar years, the colonial authority in Tanganyika was paradoxically preoccupied with supporting KNPA while covertly inhibiting its growth and eventually stifled it through legislation manifested by the 1932 *Co-operative Ordinance*. Understandably, the *Ordinance* articulated enthusiasm of the Registrar of co-operatives as well as from colonial officials across districts and provinces in the territory as a platform to promote co-operative societies in their areas of jurisdiction. Notably, such enthusiasm in some districts and provinces were successful while others experienced a setback. This suggests that, the promotion of co-operatives during the interwar years lacked a clear due to absence of central co-ordination. The successful initiatives were accidental and not guided by a common political and policy from the colonial authority. Clearly, a commitment to promote agricultural marketing co-operatives in the territory was a stooge as the whole scenario was driven from above by political decision, policies and legislations that

[129] Rungwe District Book, 1935.

surreptitiously subdued KNPA while allowing the formation of others as a way of exerting colonial authority in the territory and as a way navigating competing commercial and economic interests.

"Drinking too much, they can't Work": The Settlers, the Hehe Work Discipline and Environmental Conservation in Mufindi, Tanzania, 1920-1960

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Abstract

The colonial state's relation with the settlers and with plantation owners in Tanganyika was largely precarious. This article uses the Mufindi area to navigate the contrasting views of the settlers and the colonial state on poor response of the black labourers to work and 'poor environmental management' amidst increasing number of 'natives' between 1920 and 1960. The available data indicates that the colonial state remained a settlers' broker in securing farming land while acting as the guardian of the natives' interests of land ownership. As such, state responses exhibited a high degree of pragmatism. In Mufindi area of Iringa district, German settlers specialized in tea farming while British nationals were engaged in wheat production in the Sao Hill. The settlers, despite their numerical inferiority, pressed hard the government to grant them more land and create policies to compel Africans to work on their farms. Building on primary and secondary sources, this article adds to the existing historiography on colonial agriculture by analyzing the settler complaints over labourers' low work discipline in previously unexplored area of Mufindi.

Keywords: Mufindi, settler economy, labourers, tea plantations, environmental conservation.

1. Introduction

While it is well documented that in Tanganyika settler agriculture was almost absent, the few places which practiced settler farming like Mufindi, the voice of those settlers with regards to the labour question is missing in the historiography of labour history in Tanzania. This paper adds to the rich historiography of labour history on the aspects of mission and experience of the iota settlers in Mufindi during the British colonial Tanganyika (1920-1960). The labour history scholarship is broad as it captures many themes from colonial to postcolonial period. One of the key areas the labour scholarship has focused on is the settler agriculture and its core values. Settler agriculture has been connected with crown British colonies such as Kenya and Zimbabwe. However, this article follows a different course by affirming that although the British in Tanganyika dedicated their policies to the promotion of peasant and plantation agriculture, in some areas like Mufindi in the Iringa Province, the colonial state tolerated settler agriculture. This article brings to light key complaints of the settlers of Mufindi and their respective responses from the British colonial state between 1920s and 1960. These complaints of the settlers were against labourers' behaviour such as drunkenness, indolence and desertion.

2. Historiographical Note

The colonial labour history of Tanzania, because of its two phases of colonialism under German and British occupation, is both rich and diverse. Many scholars interested in the labour question have debated the origins and historical location of migrant labour in Tanzania and other destinations such as the mines in South Africa. This article, however, debates the labour history of Tanzania and the dynamics which shaped the transformations over time during the colonial era between 1920 and 1960.

The establishment of colonial rule in Tanzania was based on the motive of exploitation of the natural resources within the colony.[1] The advent of colonialism radically altered the fundamental attributes of the peasant economy, which had been the dominant mode of production during the pre-colonial period. Because of colonialism and the subsequent development of colonial economic systems, capitalism was gradually introduced into colonial Tanzania. Subsequently, between 1920 and 1930 the economy witnessed a shift from a predominantly peasant-based production system to a plantation economy with the introduction of cash crops.[2] From there, a proletarian class emerged largely subsisting on

[1] See, for example, Roderick Neumann. "Forest Rights, Privileges and Prohibitions: Contextualizing State Forestry Policy in Colonial Tanganyika." *Environment and History* 3 (1997), 47.

[2] Paschal Mihayo. "Industrial Relations in Tanzania." In Ukandi Damachi et al. eds., *Industrial Relations in Africa* (London: Macmillan Education, 1979), 240-272; See also, Marjorie Mbilinyi. "Agribusiness and Casual Labour in Tanzania." *African Economic History* 15 (1986), 120-125.

labour employment in the newly founded plantations – mainly sisal. They formed a pioneer colonial labour force which increased in size as the plantation economy expanded.[3] The development of the cash economy also initiated the growth of the export sector. However, tea plantations did not yet form one of these big migrant labour destinations in these formative years.

As was a dominant characteristic in most other colonies, the main challenges in the Tanzanian colonial economy were transport and the shortage of labour. Bill Freund succinctly argued that "the basic question of all concerning labour in Africa was how to get it".[4] Because of the transport challenge, the main economic projects were set in the vicinity of coastal areas of Tanzania, in modern Tanga, Dar es Salaam, Lindi, Morogoro and Kilimanjaro.[5] To indicate how critical the challenge of transporting goods from the interior was, the British noted with frustration in 1928 that "to transport

[3] Walter Rodney. "The Political Economy of Colonial Tanganyika, 1890-1930." In M. Kaniki (ed.). *Tanzania under Colonial Rule* (Dar es Salaam, Historical Association of Tanzania, 1979), 137-140.

[4] Bill Freund. "Labour and Labour History in Africa: A Review of the Literature." *African Studies Review* 27, No. 2 (1984), 2.

[5] The German white settler agriculture was limited mainly to the Usambara. See for example, Walter Rodney, "The Political Economy of Colonial Tanganyika", 128-160; John Iliffe. *A Modern History of Tanganyika* (Cambridge: Cambridge University Press, 1979), 287.

coffee from Mbinga, to the coast, cost twice as much as shipping it thence to Europe".[6]

The expansion of communications networks to the interior was inevitable. As a result of the expansion of communication networks to the interior, between 1924 and 1935 plantation agriculture developed significantly with migrant labour also played a critical role in that growth. By 1929 the railway line from Dar es Salaam to Tanga; built by the Germans in 1912 the Tanga-Moshi railway line was extended to Arusha in 1930; and by 1932 the Tabora-Kigoma railway line had been extended to Kinyangiri, where coal deposits had been discovered. Similarly, between 1927 and 1938 road mileage had increased from 2,650 to 12,000 penetrating areas suitable for the production of cotton, sisal, coffee and tea.[7] German stereotypes viewed local ethnic groups as lazy especially, the coastal people, who were described as having "inborn laziness", "indolent" and "idle".[8] Consequently, both the Germans and the British preferred migrant labour, mainly from the hinterlands of Tanzania. These areas were referred to as labour reserves, which literally meant that they were areas with a large and reliable pool of 'hardworking people'. These areas included Tabora

[6] Iliffe, *ibid*.

[7] Mihayo, "Industrial Relations in Tanzania".

[8] Juhani Koponen. *Development for Exploitation, German Colonial policies in Mainland Tanzania, 1884-1914* (Helsinki: Finnish Society for Development Studies, 1995), 323; See also Thaddeus Sunseri. "Labour Migration in Colonial Tanzania and the Hegemony of South African Historiography." *African Affairs* 95, No. 381 (1996), 592.

(Nyamwezi, Sukuma), Lake Zone area (The Sukuma), Kigoma (Ha), and Iringa (Bena and Kinga). The selection criteria used to designate these hardworking ethnic groups stimulated many scholarly debates, not only on the description of people within the binary notions of lazy and hardworking, but also on the trafficking of the very 'hardworking' people from Tanzanian hinterlands to the coastal sisal plantations. Juhani Koponen explored exhaustively the German colonial-period labour question with regards to measures of sustaining labourers. Issa Shivji discussed how laws unfolded in resolving the clashes between the state, the planters and the working class in the sisal industry.[9] John Iliffe discussed the labour question during both the German and British colonial periods with regards to the brutality of the Germans and the intensified taxation as a means of applying indirect force by the British in recruiting labourers.[10] These studies expanded my understanding of the dynamics of the labour question in Tanzania.

During the colonial period, however, in Tanzania migrant labour was sometimes considered to be a noble duty in

[9] Koponen, *Development for Exploitation*, 321-440; Issa Shivji. *Law, State and the Working Class in Tanzania, C.1920-1964* (London: James Currey, 1986).
[10] Iliffe, *Modern History*, 309-325; John Iliffe. *Tanganyika Under Germany Rule, 1905-1912* (Cambridge: Cambridge University Press, 1969), 9-20.

certain corners of the territory – especially for those who went to those destinations out of their own choice (rather than being coerced), particularly to the mines in South Africa. The Southern Highlands people of Tanzania travelled all the way on foot to Malawi. Labourers from Songea or Southern Iringa districts embarked at Mwaya, a port on Lake Nyasa, to travel to Kotakota, a distance of 250 miles.[11] Some of the migrant labourers joined the migrant labour sector to get money to buy cattle for *lobola* (dowry), or as a way of accumulating wealth for prestige.[12] The bottom line is that sometimes labour migration was a voluntary exercise, yet force and compulsion by the colonial state in labour migration were dominant.

Some scholars have written about the migrant labour destinations and labour conditions. Iliffe, for example, alludes to some historical names in Tanga to reflect the areas from which the migrant labourers came. These places were "Chumbageni" (the alien's place), "Ugogoni" (a place for Gogo people from Dodoma region), "Ubena" (a place for the Bena people from Njombe), and "Unyanyembe" (a place for the Nyanyembe people from Tabora).[13] James Giblin surveyed and recorded the names of the Bena (famous migrant

[11] Shivji, *Law, State and the Working Class*, 44-45; See also Bill Freund. "Labour and Labour History in Africa: A Review of the Literature." *African Studies Review* 27, No. 2 (1984), 1-58, here at 20.
[12] James Giblin. *A History of the Excluded, Making Family a Refuge from State in Twentieth-Century Tanzania* (Dar es Salaam: Mkuki na Nyota, 2005), 107-155; Sunseri, "Labour Migration in Colonial Tanzania", 592.
[13] Iliffe, *Modern History*, 309.

labourers) people which reflected their participation in migrant labour in the coast – Tanga.[14] Names such as "Kaziulaya"-European work, "Baharia"- sailor and "Msafiri"-traveller, became common among the migrant labour from Njombe.[15] Sunseri's discussion focused on the recreation of the labourers besides their tight working schedules. The *ngoma* (drum) dances in the sisal plantations were appreciated by the planters as they were thought of as effective in retaining labourers.[16] These scholars enable us to reflect on the multiple dimensions of labour history in Tanzania.

The study of the labour migrations also shifted the focus to women as custodians of the homesteads in the absence of their husbands in the early 1980s. Deborah Bryceson, Marjorie Mbilinyi, Thaddeus Sunseri and James Giblin have debated the socio-economic pressures endured by women in the absence of their husbands, who had gone in search of work in the coastal areas of Tanzania.[17] The colonial planters

[14] Giblin, *History of the Excluded*, 111-116.
[15] *Ibid.,* 114-115.
[16] Sunseri, "Labour Migration in Colonial Tanzania", 591.
[17] Deborah Fahy Bryceson. "The Proletarianisation of Women in Tanzania." *Review of African Political Economy* 17, (1980): 4-27; Marjorie Mbilinyi. "Agribusiness and Casual Labour in Tanzania." *African Economic History* 15 (1986), 121-122; Giblin, *History of the Excluded*, 107-155; See a case from South Africa by Jacob Troup. *Natures of Colonial Change, Environmental Relations in the Making of the Transkei* (Athens: Ohio University Press, 2006), 59-62.

sometimes preferred women migrants who came with their husbands, as they were believed to stabilize working conditions for their spouses. Sunseri points out that "women were integral to the plantation system as producers and as reproducers of the social amenities needed to support male migration".[18]

The brutality of the German labour recruitment system and forced labour, particularly during the Maji Maji War between 1905 and 1907, is well documented in German colonial historiography.[19] The Maji Maji War to some extent altered the kind of administration as well as the labour contracts. Governor Rechenberg believed that all forms of forced labour in German East Africa were a source of the Maji Maji War and henceforth he encouraged a willing seller-willing buyer system enshrined in the 1909 labour ordinance.[20] Because of the Maji Maji War, the post-war labour laws on plantations led some employers to opt for the employment of women and children instead of men.[21] When the British took over the colony from the Germans officially in 1920, a mandatory system built on Recheberg's policy of willing seller-willing

[18] Sunseri, "Labour Migration in Colonial Tanzania", 589; Tiyambe Zeleza. "Women and the Labour Process in Kenya since Independence." *Transafrican Journal of History* 17 (1988), 69-70.
[19] Koponen, *Development for Exploitation,* 229-240; Iliffe, *Modern History*; *Idem*, *Tanganyika Under German Rule*, 9-20.
[20] Thaddeus Sunseri. "Working in the Mangroves and Beyond: Scientific Forestry and the Labour Question in Early Colonial Tanzania." *Environment and History* 11, No. 4 (2005), 383-387 (365-394).
[21] See, for example, Mbilinyi, "Agribusiness and Casual Labour in Tanzania", 121-128.

buyers was continued, but with the use of compulsory taxation as an indirect force to compel Africans to work on those plantations.[22] The willing seller-willing buyer labour recruitment system went well with the indirect rule of the British.[23] Concerns about shortages of labour in Tanganyika, however, compelled the first British Governor, Sir Horace Byatt, to discourage settlers from forced labour recruitment until after the Second World War.[24] The problems of labour in Tanganyika led to the wide use of the pejorative term "Black man's country" as a reference to the economy of the country, which the British Governor claimed was primarily based on peasant agriculture.[25] Consequently, the planters during the British colonial era referred to the shortage of labour in Tanganyika as the "labour calamity".[26]

In the wake of the rise of black African nationalism after the end of the Second World War, the labourers formed trade

[22] See, for example, Walter Rodney. "The Political Economy of Colonial Tanganyika, 1890-1930." In M. Kaniki ed., *Tanzania under Colonial Rule* (Dar es Salaam: Historical Association of Tanzania, 1979), 144-160.
[23] See, for example, Jacob Orr. "Where our House was, I found only Trees": Colonial Development and Shared Memory in the Village of Itulike, Tanzania (Concordia University: M.A. Thesis, 2016), 13-16.
[24] Roderick Neumann. "Forest Rights, Privileges and Prohibitions: Contextualizing State Forestry Policy in Colonial Tanganyika." *Environment and History* 3 (1997), 49.
[25] *Ibid*.
[26] Hanan Sabea. "Mastering the Landscape? Sisal Plantations, Land, and Labour in Tanga Region, 1893-1980s." *The International Journal of African Historical Studies* 41, No. 3 (2008), 420.

unions to demand better wages and better working conditions. This has been the subject of much scholarly attention.[27] Trade unions sometimes organized their members to engage in collective job action and strikes. In Tanzania the dockworkers took a lead in strikes. In Dar es Salaam two major strikes took place between July and August 1939.[28] The dockworkers' strike marked the beginning of strikes in other colonial economic sectors as they resisted decasualization.[29] Therefore, this rich scholarship on the labour history in Tanzania has formed the background of this article.

3. The Coming of the Settlers in Mufindi

Most Europeans in Mufindi, as was the case in other parts of Iringa district during the 1930s, were German smallholders. At the very beginning of colonization of Tanganyika, the Germans were interested in settler agriculture, Iringa district being one of the focal points after the Northeastern Province. The Maji Maji War of 1905-1907 and the First World War of 1914-1918 disturbed the long plans of the German planters in Iringa district. Seven years after the First World War, German settlers were allowed to come back. These German

[27] Issa Shivji, *Law, State and the Working Class in Tanzania, C.1920-1964* (London: James Currey, 1986), 165-178; Gundula Fischer. "Power Repertoires and the Transformation of Tanzanian Trade Unions." *Global Labour Journal* 2, No. 2 (2011), 127-131.
[28] Shivji, *Law, State and the Working Class*.
[29] Fischer, "Power Repertoires"; Freund "Labour and Labour History in Africa".

settlers began to arrive in 1926.[30] Most of them rushed to the Southern Highlands under the supervision of a German Consul based in Nairobi. Their economic activities were financed by the Uhehe Trading Company and the Usagara Company. Both companies were supported by the German government and used to buy all the settlers' produce. There were only few Germans who worked independently on their own.[31]

By 1930s, there were already more than 80 settlers in Iringa district, most of whom were Germans. In fact, until the outbreak of the Second World War, German settlers were the majority among the European farmers in the Iringa district. The British settlers began to arrive in great numbers following the news about the Germans' return to Tanganyika. Governor Cameron's attitude towards British Settlement in the colony had slightly changed. Once opposed to expatriates, he became sympathetic especially when Kenyan

[30] See, Hezron Kangalawe. "The History of Labour Process in the Tea Industry, Mufindi, 1960-2010s" (University of Dar es Salam: M.A. Diss., 2012), 36. See also, Weiner Voigt. *60 Years in East Africa: Life of a Settler 1926 to 1986* (Ontario: General Store Publishing House, 1995), 58-63.

[31] Martin Mkuye, "The Failure of Settler Agriculture in Southern Highlands, Iringa district: Case 1920- 1961" (University of Dar es Salaam, 1976), 16.

settlers began to show an interest in the Southern Highlands.[32]

The Colonists Ltd formed in 1925 with a capital of only £6,000 provided chiefly by Delamere, Lord Egerton of Tatton and Sir John Ramsden, assisted the British settlers in Mufindi. The company's activities were those of land agency. Word went around that the Southern Highlands was to become a "Second Kenya", which led to an exodus from Kenya to Tanganyika particularly to the Southern Highlands. Other British settlers went to Iringa through individuals acquiring large portions of land and advertising in Europe and India for prospective individuals to come and lease it. The case in point is the Lord Chesham who formed the Chesham Estates Ltd at Sao Hill after making the necessary advertisements.[33]

Throughout the late 1920s and the whole of 1930s British settlers kept arriving in Iringa district; some coming from as far as Australia so that after the Second World War the number of British settlers had increased tremendously. Other settlers in the district included the Greeks specializing in tobacco production in the northern part of Iringa district especially after the Second World War and Asians who bought and occupied most of the farms of departing British

[32] Robert Mabele. "The Economic of Smallholder Tea Production: The Case of Njombe District" (University of Dar es Salaam, PhD Thesis, 1987), 11.

[33] Mabele, "The Economic of Smallholder Tea Production".

Settlers especially in the 1950s as Tanganyika's independence was looming large.[34]

After their return to Tanganyika from 1926, the Germans remained in the country untill the outbreak of the Second World War in 1939. During this whole period, the Germans had attempted to establish commercial farming with little, if any success. The crops they attempted to grow included pyrethrum, tea, wheat and other food crops such as maize, beans, peas and vegetables.[35]

With the outbreak of the Second World War, German tea planters were expelled and their tea and other farms were placed under the custodian of Enemy Property. When the hostilities of the Second World War commenced, the tea estates were run in management groups under the control of the Assistant Custodian at Mufindi,[36] assisted by six experienced managers from Nyasaland (Malawi). The management by this Department continued until the end of 1939[37] when the estates were leased to the Tanganyika Tea

[34] Mkuye, "The Failure of Settler Agriculture in Southern Highlands".
[35] Mabele, "The Economic of Smallholder Tea Production", 17.
[36] The Mufindi tea plantation which before the Second World War was owned by Germans, was put under Enemy Property of Tanganyika Enemy Tea Estates were situated in the Southern Highlands Province, one group of 24 estates being at Mufindi and 5 were at Tukuyu.
[37] Many scholars have estimated the lease year to be in 1940.

Company.[38] In early 1940, 24 German estates and a processing plant fell under the control of the Kenya Tea Company, which established an affiliate concern at Mufindi under the name of the Tanganyika Tea Company.[39]

Unfortunately, in 1941, there was a big demand for local seed in East Africa, and war conditions prevailing at the time made the importation of seed from India impracticable. In 1942, the necessary seed was imported from India but the delays in transport occurred in India due to war conditions and most of the seeds were useless on arrival and the percentage of germination was disapprovingly low. A very small number of local seeds were available at the time in East Africa, and all other estates required all the seeds produced by them to be used by themselves. At this stage, in Mufindi, the area of vacancies was estimated to stand at 546 acres. An order for deed was again placed in India but considerable delay was experienced in getting an export license. The seeds did not arrive until January, 1944 and again the germination was poor, averaging only 35%. A further order for seeds was thereupon placed in India for delivery in January 1945.[40]

The lessees imported new seeds, regenerated neglected fields and built a new factory with a larger capacity. Tea production soon obtained a reputation of such high quality

[38] D.R. McDonald. Enemy Property in Tanganyika (Cape Town: Hortors Limited, 1946), 35.
[39] Mkuye, "The Failure of Settler Agriculture in Southern Highlands", 17.
[40] *Ibid*.

that a comfortable margin of profit was maintained as one comment from the London tea auction testifies:[41]

> Growth is much slower at Mufindi than in other tea areas in East Africa and the tea bushes take much longer to reach maturity, but on the other hand, the tea from the Mufindi estates receives a high price on the London market. The high quality of the tea is due partly to the fact that the lessees have built a modern and efficient factory and are able to turn out the best quality tea under the best conditions.[42]

The other reason why tea from Mufindi was so tasty was that the labourers, the Wakinga in particular, were careful in plucking only the most tender leaves, the two leaves and a bud for processing. Recognizing the importance of the workers' contribution to their success, the Tanganyika Tea Company tried to provide the best possible working conditions for their labourers.[43]

When the estates were taken over by the Tanganyika Tea Company, it soon became apparent that many of them had been seriously neglected and much work was necessary to

[41] James D. Graham. "Changing Patterns of Wage Labour in Tanzania: A History of the Relations between African Labour and European Capitalism in Njombe District, 1931 – 1961" (Northwestern University, PhD Thesis, 1968), 130.

[42] Graham, "Changing Patterns of Wage Labour in Tanzania", 131.

[43] *Ibid*.

put the estates in order. Lalang and Couch grass were firmly rooted in many areas, especially in newly planted areas, where it was obvious that the land had not been properly cleaned before planting. In addition, the percentage of vacancies in newly planted areas and some of the mature areas was abnormally high and in some immature areas only occasional tea plants had survived.[44]

Tea gardening was in its infancy in Tanganyika at the outbreak of the war and Mufindi estates were still in the course of development. The economic unit at that time was considered to be 175 acres and licenses had been issued to many estates for the planting of additional areas in order to bring the tea areas up to 175 acres.[45]

The tea farms were threatened with decline as the British settlers who leased some of them did not have the financial support provided by the German organizations. In his report for the year 1939, the Provincial Commissioner for the Southern Highlands clearly showed how important German activities had been in the economy of the province at the time of the outbreak of the Second World War. Before the Second World War, 90% of the plantations and farms were owned by Germans, and 75% of all agricultural inputs and farm materials were supplied by German enterprises. Most finance and credit facilities were controlled by German firms and they even owned 50% of all garages. Shortly before the

[44] McDonald, *Enemy Property in Tanganyika*.
[45] *Ibid*.

outbreak of the Second World War, experiments were made in the Mufindi area to grow pyrethrum, and many of the tea planters took the opportunity of inter-planting the young areas with pyrethrum, in order to enable them to obtain ready cash from their pyrethrum.[46] The shortage of capital threatening the tea plantation in Mufindi came to an end in 1940 when the Brooke Bond, a transnational company with a lot of experience on tea gained in India and which had by then gained a strong foothold in the Kenya tea industry, leased on an annual basis all former German tea farms and the factory in Mufindi. In 1949, the Brooke Bond Company was granted a longer-term lease.[47] These settlers had many complaints and observations towards the African labourers and indeed the state on curbing such problems.

4. The land question for settlers, 1930s-1960

The availability of extensive suitable areas is a prerequisite for settlers' agricultural scheme. In Tanganyika land was held by the state by virtue of the 1923 Land Ordinance but acquisition of land involved discussions and negotiations with the customary owners. These discussions and negotiations were important in areas where the land in question was in great demand by various land users, as was the case in Mufindi. The acquisition of land in Mufindi

[46] *Ibid.,* 37.
[47] Mabele, "The Economic of Smallholder Tea Production", 16.

(around tea farms) was difficult, because the customary owners of the land thought that settlers would rob them of their land.[48]

Firstly, the settlers acquired land from two big colonial settlers in Mufindi, namely Lord Chesham and Israel Masada. The history of Lord Chesham went back to 1936, when Iringa district in the Southern Highlands Province underwent massive land alienation of approximately 120,000 acres to a limited company formed for the purpose of developing the land by "non-native settlement" on mixed farming lines.[49] That scheme was famously known as the Lord Chesham Scheme, which was made public in the press towards the end of 1936.[50] Lord Chesham advertised his appropriation throughout the late 1930s:

> Even in the middle of the day the air is fresh and invigorating, the sun pleasantly hot, but a fire is welcome in the evening almost the year round. Malaria, tsetse fly and drought, the three main pests

[48] M.C. Mtuy. "Mufindi Afforestation Project Report Record No.8" (Unpublished Report, 1979), 6.
[49] L. Chesham. "Settlement in Tanganyika." *Journal of the Royal African Society* 37, no. 147 (1938), 2.
[50] Tanzania National Archives, hereafter TNA, "Land and Land Settlements" in Provincial Book-Southern Highlands Book VOL. II. ca. 1920-1940.

> of Africa, are not to be found there [Sao Hill] nor is the locust, the bane of all settlers, to be expected.[51]

Lord Chesham bought part of the farm from Col. Arthur Focus, who had attempted to settle the British nationals in vain at Sao Hill in 1925. After the failure of the first plan, Col. Arthur Focus imported horses, cattle, sheep and pigs to Sao Hill. The second project failed too as Nodular worms in the sheep prevented progress. Focus died in 1935 and his land was relinquished to Lord Chesham, who increased its acreage tremendously.[52] Lord Chesham, however, paid due compensation for disturbances to the customary owners, who numbered 278. The customary owners surrendered their rights of occupancy willingly in terms of three options. The first choice allowed the customary owners to continue with their right of occupation, the second was to surrender their rights of occupancy to the company and to move to another area after receiving compensation fund for disturbance, and the third was to remain on the land as a tenant of the company. The natives unanimously chose to move on receipt of disturbance compensation fund, which was assessed by the administrative authority and confirmed by the Governor too.[53]

[51] Chesham, "Settlement in Tanganyika", 189.
[52] TNA, "Land and Land Settlements".
[53] TNA, "Land and Land Settlements".

The Hehe, however, heavily resented the taking of their lands at Sao Hill in 1937, when it was reported that the land was leased to a European for permanent settlement. The Sao Hill land owned by Chesham formed the subject of one petition in 1956 filed at the UN headquarters, which alleged that a number of the Hehe in the UN Trust Territory of Tanganyika had been turned off their land by the British. The petition alleged that the land grab had happened in the sub-chiefdoms of Mufindi, Kibengu, Kilolo, Mahenge and Idodi.[54] The late Lord Chesham was alleged to have bought several hundred square miles of good land and to have kept it idle and had given part of it to "his fellow whites". After Lord Chesham's death, Africans (The Hehe) asked for that land back. One statement in the petition is worth quoting: "The Hehe have great fears that one day their fertile land might be declared 'White Highlands'". The petition ended by adding that the Hehe did not want their country become another Kenya and urged the UN to intervene on their behalf.[55] The other similar case which found its way to the UN from Tanganyika was that of the Meru people in North Central part in 1952. The Meru people were resettled from their customary land to allow expansion of European land holdings.[56]

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[54] A. Thompson, *Report from UN: Africa Today: Land Grab in Tanganyika* 3, no.5 (1956), 10-11.
[55] *Ibid*.
[56] M.L. Bates. "Tanganyika: The Development of a Trust Territory." *International Organisation* 9, No. 1 (1955), 44.

Lady Chesham, the widow of the late Lord Chesham, relinquished the land to the colonial government in the late 1950s. She was one of the most popular women in the Tanganyika African National Union (TANU) Women's Wing and she even got a seat in the Legislative Council in the 1958 general election to represent the Hehe ethnic group in the Southern Highlands Constituency of Iringa.[57]

Israel Masada owned part of the Sao Hill plantation of today in the east of the Division I of today with 87,000 acres.[58] Israel Masada acquired the land in lease form from the colonial state in 1927. Nothing of value was developed on Masada's land as he was too occupied with other investments in Kenya.[59] Because of that, a number of the local African population encroached on his dormant farmland. The land was revoked by the state in 1961 for plantation forestry. Those local people who encroached on his farm were not compensated by the forest department as they had encroached illegally on privately owned land.[60]

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[57] Salma Maoulidi. "Racial and Religious Tolerance in Nyerere's Political Thought and Practice." In Chambi Chachage and Annar Cassam. *Africa's Liberation: The Legacy of Nyerere* (Dar es Salaam: Fahamu Books, 2010), 135.

[58] Sao Hill Settlers Association to the Governor, 16.11. 1958 in TNA Acc. 257 AN/1/21/015 –Sao Hill Mufindi Settlers' Association.

[59] *Ibid*.

[60] Interview with Kambaulaya Mtavangu, 19.5.2016 at Mtili Village, Mufindi, Iringa Region.

5. The labour question and the Hehe Culture

In Tanganyika, during the British colonial rule, Iringa was among the intensive labour exporting regions but, ironically, settlers of this region suffered from labour shortage throughout their stay in the region particularly in Iringa district.[61] Many economists claimed that the situation was a unique character of the Africans showing that market forces failed in Africa. In fact, the whole mission of colonization was manifested in making the Africans work in different colonial projects, settler economy being one of them. Koponen says that to most Germans, colonization meant making Africans work.[62] Settlers accused the Hehe of Iringa which included Mufindi, of not working unless taxation forced them. Different complaints from tea planters in Mufindi were about the shortage of the 'native' labourers. The settlers explained that in the tea industry, an all-important factor was the availability and efficiency of 'native' labour. They further complained that the government had sanctioned the importation of Tamils from south India in the event of local labour proving insufficient and unsuitable.[63] In one visit of the governor to Mufindi in 1933, the settlers pressed the following complaints:

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[61] Mkuye, "The Failure of Settler Agriculture in Southern Highlands", 22.

[62] Koponen, *Development for Exploitation*, 321; See also the context of Malawi by Peter A. Walker. "Roots of Crisis: Historical Narratives of Tree Planting in Malawi." *Historical Geography* 32 (2004), 89-109.

[63] TNA Acc. 24/26038: Tea Cultivation in Usambara Mountains by Captain M. F. Bell.

> We press for the Registration of natives in the manner already adopted in Kenya. This has previously been asked for, but the government, owing to the expense involved has not yet been able to see a way to do it [...]. I would point to your Excellency that at present if we break a contract, we are quite rightly fined fairly heavily, whereas if a labourer does so, he is practically never punished. So, registration would benefit the settler in stopping sudden desertions, and it would place on the native a responsibility which he would find difficult to evade.[64]

The governor responded to the settlers that based on his experience on African labour, the only way of maintaining a good supply was to popularize employment by catering for workers' comfort by means of providing good housing and adequate food of the kind they were accustomed to and by establishing shops in the neighborhoods.[65] The problems of labour in Tanganyika led to the wide use of the pejorative term "Black man's country" as a reference to the economy of the country, which the British Governor claimed was primarily based on peasant agriculture.[66] Consequently, the

[64] Shivji, Law, *State and the Working Class*, 99.
[65] TNA Acc. 24/23266: Railway Rates on Tea.
[66] Neumann, "Forest Rights, Privileges and Prohibitions", op. cit.

settlers during the British colonial era referred to the shortage of labour in Tanganyika as the "labour calamity".[67]

There were further complaints by the tea and wheat settlers in Mufindi that the Hehe were drinking local beer excessively. The planters claimed that the habit had detrimental effects on the efficiency of labourers on the tea estates and wheat farms. The governor replied that the Native Liquor Ordinance had been applied to the whole area of Mufindi since 1932 and he added that accordingly, no one was entitled to brew or sell native liquor within the areas without a license. On the licenses issue, the District Commissioner [Iringa] reported to the governor that only 8 licenses by then had been issued to the native brewers. Furthermore, the governor added that the native authority of Uhehe had in 1932 passed a bylaw under the Native Authority Ordinance (NAO) which prohibited the brewing and selling of beer in or near settlers' farms. The governor concluded by urging the District Commissioner (Iringa) to increase enforcement of the law by using the sub-chiefs in the Mufindi area and subsequently, the Police Post at Kibao was established. Kibao was the main business centre in Mufindi by then.[68]

[67] Hanan Sabea. Mastering the Landscape? Sisal Plantations, Land, and Labour in Tanga Region, 1893-1980s." *The International Journal of African Historical Studies* 41, No. 3 (2008), 420.
[68] TNA Acc. 24/23266: Railway Rates on Tea.

Controlling excessive use of local brew was given a pivotal emphasis around Mufindi and when one reads from the archival sources, one finds that drunkenness was deemed to be the main reason for the Hehe's poor response to settlers' farms. Many complaints were claimed to have solution on policing the Native Liquor Prohibition of 1932. In the following quotation, the Area Commissioner [District Commissioner] was responding to one settler's complaint via the police superintendent at Sao Hill on excessive use of local brew around his farm.

> A resident of the Sao Hill area has complained that the *pombe* shops in his neighbourhood supply so much *pombe* that his African Staff is perpetually drunk, and has asked if I can do anything to prevent this. I explained that the licensing of native liquor in this area was under the Native Authority and that I doubted if I could take any effective action with the law as it is. Cases of disorderly conduct can, of course, be dealt with by the police of the Police post at Sao Hill, but they have no powers to supervise the running of the existing *pombe* shops. It would be possible for the Native Liquor Ordinance (Chapter 77 of the laws), to be applied to a described area, for example, a circle with radius of three miles from John's Corner [Mafinga] and if this were done, the licensing and supervision of the *pombe* shops would pass from the

> hands of the native administration into the hands of the Administration police. Hours at which *pombe* can be sold would be limited, licenses would be for consumption on the premises only, unless in a specified case an African were allowed to take *pombe* home, and might be possible in this way to reduce drunkenness in the area if this is at present prevalent.[69]

Drunkenness behavior among the Hehe was indeed deemed a stumbling block to labourers in Mufindi area by the settlers. The evidence provided was from the roll calls or muster on the farms. The settlers sometimes reported such disorder to the District Commissioner and to the police officers at Iringa headquarters:

> We regret that, once again, we have to draw your attention to the excessive consumption of liquor by the Africans of the Mufindi district. This habit is, in our opinion, becoming serious, particularly during weekends. Our muster of labourers on Monday morning is far below our normal strength and furthermore many of those that do report for work are not in a fit state to carry out their duties. As employers who have every intention, of improving condition for our labour it is extremely discouraging to see the brawls, misconduct and drunkenness that go on near Kibao during the weekend. The advantages

[69] TNA Acc. 24/ A2/8, 1934-1952: Native Liquor Prohibition.

> that would normally accrue to the native through good and regular pay appear to be entirely lost by their increasing expenditure on liquor. Furthermore, this habit must have a very serious effect on their health. The writer visited Kibao yesterday afternoon and had to stop his car and interfere in a fight that was proceeding in the middle of the road and within the space of a mile; at least twelve natives were seen to be drunk and incapable. During the quarter of an hour that was spent in this area no native policeman was to be seen. We are willing to co-operate to the best of our ability and we make an urgent request that the number of licensed beer shops should be reduced to a minimum and those that remain should be under strict supervision. In a settled area of this description, we consider the present situation as serious.[70]

The Southern Highlands Provincial Commissioner report of 1936 to the Governor noted the same problem of the Hehe of Iringa district's failure to respond to market forces by putting it in this way:

> The tea estates in the Iringa and Rungwe districts and coffee estates between them provided employment for some 3,000 natives. In the Iringa

[70] TNA Acc.24: The Tanganyika Tea Company Limited.

> district the Hehe who constitutes the principal tribe are noted for their reluctance to seek work unless forced to do so by economic necessity, consequently Bena and Kinga from Njombe form the bulk of the labour force in this district [Iringa]. [71]

The case of labour shortage found in Uhehe was similar to the one experienced in the areas of sisal plantations in Kilosa and Tanga. To the government, it was necessary to attract migrant labour because many of the Africans who lived along the Coast and the Central Railway were simply not interested in wage labour. This was partly due to the oppressive and debilitating climate there; most of the people near Kilosa and Tanga, for example, did not respond to opportunities of the labour market. From the earliest days of plantation farming during the German era, the supply of local labour was found to be entirely insufficient and workers had to be brought in from other districts. The work on the sisal estates consisted of cleaning and planting, cutting the sisal leaves and transporting them to the factory, where they were decorticated, washed, dried, brushed, pressed and baled. Such work was disdained by many Africans in Tanga Province, where Islam was widespread and it was felt that manual labour was undignified and a suitable occupation for slaves only.[72] Even with migrant labour it was always difficult to obtain good sisal cutters. Cutting was very

[71] TNA: Southern Highlands Province Book Volume II.
[72] Graham, "Changing Patterns of Wage Labour in Tanzania", 72.

unpleasant because workers had to move about amidst sharp-pointed leaves and it required a certain amount of concentration because careless cutting would damage both the leaves and the plant. The Wabena were known as excellent sisal cutters.[73]

Wartime (1939-1945) demands for both men and material placed the sisal industry in Tanganyika in an uncomfortable position. The strategic uses of manpower increased, likewise the demand of labour increased. Thousands of Tanganyikans were conscripted into military service, including many of the Hehe from Iringa district. The conscripts from Njombe district were enrolled in the East African Military Labour Service (E.A.M.L.S) rather than KAR as their neighbours, the Hehe. E.A.M.L.S was established after Italy entered the war in order to provide unskilled labour along lines of communication and in forward battle areas. This varied experience of war by the Bena and the Hehe meant differences in perceptions and psychological orientation even in utilizing them as labourers.[74] The Hehe regarded themselves as brave people and it seems this belief still survives for some of them. They preferred what they regard as tough and respectable jobs (*migo dsa kigoosi-man works*). For them, such jobs included the army, police and prisons. Other works such as farming and trade were left for women

[73] *Ibid.*
[74] *Ibid.*, 80.

and other ethnic groups who migrated to Iringa from neighbouring districts, especially from the then Njombe.[75] Other scholars have gone further by claiming that essentially, the Hehe cherished wars more than any other job. They claim that it was from these wars where they survived through booty.[76]

The shortage of labourers in Mufindi area never ended in the 1930s, but went on until the 1950s when the Tea Board urged the government to discourage Southern Highlands' labourers going to Rhodesia and South Africa for mineral mining. The Board urged the government to stabilize the labourers by not moving the labourers from one place to another. The planters gave an example of the Northern Province, where the Kikuyu were being replaced by the Southern Highlands labourers, which increased the shortage of labour on the tea plantations.[77]

The labour question on the tea plantations, for example, was one of the hot agendas always. It was urged by the tea planters in 1952 that the tea industry due to its serious shortage of labourers had to have a direct representation on the Labour Advisory Board. The Board sent the following resolution to the government:

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[75] Joseph S. Madumulla. *Proverbs and Sayings. Theory and Practice with examples from the Wahehe of Southern Highlands of Tanzania* (Dar es Salaam: TUKI, 1995), 2.

[76] See, for example, Egid Crema. *Wahehe: A Bantu People* (Bologna: Italian Missionary Press, 1987), 18-20.

[77] TNA, Acc.24/27053: Tea Board Minutes of Meeting.

> In view of the present and growing importance of the tea industry in Tanganyika and its dependence on labour, this Board requests that the Labour Advisory Board be enlarged to provide for direct representation of the Tea Industry. We suggest members to be nominated by the Tea Board with the approval of the Governor.[78]

Brown, the then district officer of Iringa district which by then included Mufindi, claimed that in seeking work, the Hehe preferred to remain as near home as possible and very few went outside Iringa district.[79] He claimed so by using examples of the poor response shown by the Hehe in many works which were procurable on government projects like European plantations and in the township, where traders employed a small number of labourers. He added by saying that on the whole, the Hehe did not like working for wages and that when they were forced to pay tax, they could do so by selling their livestock and some food crops like beans and maize in different nearby local markets established by Indians. But in real sense, insisted Brown, to the Hehe, working for wage was accepted as a necessary evil. Even when they decided to work, the Hehe were claimed to be very selective with the type of employers because they associated wage labour with

[78] *Ibid*.

[79] See, for example, the National Census 1957 in Tanganyika.

slavery through which they sold their neighbouring people, anyway.[80]

The complaints about the natives' failure to respond to market forces were noted throughout the territory as the Provincial Commissioner of Tanga was also heard saying that few Swahili locals worked for themselves. Those Swahili locals had the tradition that manual labour was undignified and indeed, according to them those jobs were suitable occupation for slaves only. He gave an example of the Digo who were said to be extremely lazy, poor agriculturalist, and that they did not like employment. It was due to such notion that the Germans brought the Nyamwezi who were said to be industrious.[81] As a result of these habits, some of the employers especially on the plantations did not prefer to have them at all by opting for their neighbours, the Kinga and the Bena who were claimed to be docile.[82]

6. "The natives are destroying the environment": Colonial state and peasant agriculture

Furthermore, the settlers in Mufindi had unique interpretation on the 'native' agriculture of Mufindi peasants. Their complaints directly and indirectly influenced

[80] Gordon Brown and Bruce Hutt. *Anthropology in Action, An Experiment in the Iringa District of Iringa Province of Tanganyika* (London: Oxford University Press, 1935), 153.
[81] E. C. Baker. Report on Social and Economic Conditions in the Tanga Province (Dar es Salaam: Government Printer, 1934), 55.
[82] Brown and Hutt, *Anthropology in Action,* 154.

afforestation initiatives by the British colonial state in Mufindi. Early afforestation in Mufindi, which led to the establishment of the Sao Hill plantation forest, was influenced by the main background factors, namely environmental conservation and the economic prospects from tea, wheat, timber and pyrethrum. To intervene in what the colonial state referred to as the "reckless" kind of land management by the 'natives', the colonial state established the Kigogo arboretum in 1935 to test the possibility of growing the *Pinus Patula* tree species. The Kigogo arboretum was in the extreme far south of the Sao Hill area. The arboretum brought exotic tree species from Amani Botanical Garden (Tanga Province)[83] to Mufindi for afforestation. The exotic tree species proved to be potentially good for plantation in Mufindi.[84] Furthermore, the seedlings for trials in the so-called "Native Afforestation Schemes" in the Iringa sub-chiefdoms of Kalinga and Kasanga, in Mufindi sub-

[83] The Amani Botanical Garden was the oldest one since the German colonial period. It was set up by the Germans in 1902 as an extensive arboretum of long-term botanical trial plots for exotic plant species. Species were introduced from various parts of the world for agricultural trials with different economic interests such as medicinal plants, fruits and spices, valuable timber, cosmetics, rubber, oil and ornamental plants. It was closed by the British in 1950. For details, see Tropical Biology Association. *Amani Nature Reserve: An Introduction, Field Guide* (2007), 7.

[84] TNA, Assistant Conservator of forests - Mufindi to the District Officer-Iringa, "Afforestation at Kasanga" 1st February, 1939. Acc. No. 24: File No. 19/4: Forestry.

district, came from Kigogo arboretum.[85] At some point, the arboretum collaborated with tea companies, specifically Tanganyika Tea Company, to test the growth of trees in the grassland areas of Mufindi. The Senior Forester applauded the role of the tea plantations in re-afforestation on the grasslands by putting it in this way: "Certain areas which I knew as grassland 12 years ago had been successfully forested. This is pleasing to note that it has been done and that fact precludes any suggestion as to the unsuitability of soil in these grasslands for the growing of trees".[86] Transport of seedlings from Kigogo arboretum to the trial sites was carried out by the native authorities, that is, by district authorities assisted by sub-chiefs. The problem of distance from Kigogo arboretum centre to planting sites was a stumbling block in the native afforestation efforts. However, the District Officer sometimes preferred establishing nurseries closer to the farms, especially at the Kasanga sub-chiefdom in the extreme west of the Kigogo arboretum

[85] This was a programme by the British colonial government to plant trees for two reasons; one was to curb the 'natives' speed of using indigenous tree species for poles and wood. This was typically an environmental reason. Secondly, it was for pilot studies on three chiefdoms on whether the exotic tree species could be planted on Kasanga, Kalinga and Kilolo sub-chiefdoms. The Kasanga and Kalinga sub-chiefdoms proved to be good for those exotic tree species and that's the reason behind the Sao Hill plantation forests started in these two sub-chiefdoms.

[86] TNA, Senior Forester, Dar es Salaam, to the Conservator of Forests, Morogoro, 17.3.1945. Acc. No.270, Y/6: Iringa Forests.

centre.[87] The native afforestation schemes, however, were small plots which could not be equated with the Sao Hill plantation forests at all. Until 1939, there was no more than four acres per sub-chiefdom between the fertile areas of Mufindi at Kalinga (sub-chief Dimilamahuti) and at Kasanga (sub-chief Mwatima).[88] The native afforestation schemes, despite being small in acreage, worked as a provenance test in the areas that were fertile in Mufindi.

The introduction of afforestation in Mufindi was also partly the result of the Report by the Tanganyika Secretariat on Land and Surveys in 1939. The report showed that Iringa districts' native population methods of agriculture as detrimental to the environment. The Agricultural Director, based in Morogoro, reported that the extensive deforestation and soil erosion of the most pernicious kind were the consequence of the Hehes' kind of agricultural practices, which produced no economic benefits to the nation at large. The director claimed that the Hehe were producing eleusine (sic) [millet] which was entirely utilized for local beer (*pombe*) making. The report claimed that Iringa district was situated in a province which deserved a model of soil conservation measures, but shifting cultivation obviated that

[87] TNA, Assistant Conservator of forests -Mufindi to the District Officer-Iringa.
[88] *Ibid*.

possibility. The report continued by recommending that clearing and burning of forests for the production of grain crops were to be prohibited and in the absence of adequate administrative and agricultural staff, severe penalties were to be imposed on every delinquent caught. The agricultural director suggested to the Iringa districts' authorities to make their own local Soil Erosion Ordinance to curb environmental degradation. The agricultural director was ambivalent about such soil erosion ordinances, as he further reported that imposing them could be unpopular among the Hehe.[89]

These measures to curb environmental degradation in Mufindi, however, replicated those adopted by the British colonial state in India, where they imposed plantation forests on a population reluctant to adopt what the colonial state referred to as "best environmental practices".[90] Similarly, destroying forests for millet cultivation for making local beer was similar to what was happening in Northern Malawi in the 1940s. The 'natives' were alleged to have cut down trees and collect them in a large heap of about two feet high and burn them. The ashes of those trees were tilled into the

[89] TNA, Tanganyika Secretariat, File Name: Land and Survey No: 26702: Soil Erosion in Iringa district in Director of Agriculture, Morogoro to the Chief Secretary, Dar es Salaam, 27.1.1939.
[90] Gregory Barton. *Empire Forestry and the Origins of Environmentalism* (Cambridge, Cambridge University Press, 2002), 75.

ground and planted with millet.[91] The colonial rulers in Malawi intervened by compelling the 'natives' to practise contour ridging in the steep hills and to stop planting on river banks.

Soil erosion and ways to counteract it, however, were not new to the British. In the 1880s the Arabica coffee crop in colonial Ceylon failed because of soil degradation, which was induced by soil erosion. Erosion, which was on the increase, soon acquired extremely serious proportions. In a short time, the Ceylonese tea crop was also in danger because of soil erosion, which compelled the launching of soil conservation measures. In India the problem was soon reported as chronic. The Indian soil erosion was attributed to the destruction of forests. Stringent measures were introduced to control the rapid depletion of forests.[92] These measures were, among others, afforestation and strict control of bush fires. In Tanganyika, for example, the ridging or *matuta* system was among the measures which were applied in Uluguru Land Usage Scheme, and sparked fierce resistance from the

[91] John McCracken. "Conservation and Resistance in Colonial Malawi, The Dead North Revisited." In William Beinart and Joann McGregor. *Social History and African Environments* (Oxford: James Currey, 2003), 157-169.

[92] Bethuel Swai. "Crisis in Colonial Agriculture: Soil Erosion in Tanganyika during the Interwar Period", University of Dar es Salaam, not dated, 30-31; See an extensive discussion on soil erosion in Lesotho by Kate Showers. *Imperial Gullies, Soil Erosion and Conservation in Lesotho*, (Ohio: Ohio University Press, 2005), 135-176.

local population of Morogoro.[93] The British colonial state in the 1930s passed some resolutions to deal with the deteriorating environment in Africa. Plantation forests were one of the measures to curb the threat. For example, the Council of the Royal Society based in London passed a resolution in 1937; some of the wording is worth reproducing:

> This council views with the gravest concern the widespread destruction of the African soil by erosion consequent on wasteful methods of husbandry which strike at the basis of rural economic native welfare, and it is of opinion that immediate steps should be taken for the adoption of a common policy and energetic measures throughout British Africa in order to put an effective check upon this growing menace to the fertility of the land and to the health of the inhabitants.[94]

Furthermore, the Conservator of Forests based in Morogoro, had the same reservations about the Hehe methods of agriculture which were claimed to be detrimental to the environment. The Conservator of Forests said:

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[93] Pamela Maack. "We don't Want Terraces! Protest and Identity under the Uluguru Land Usage Scheme." Gregory Maddox et al., *Custodians of the Land, Ecology and Culture in the History of Tanzania* (James Currey, London, 1996), 152-169. See also, Christopher Conte. *Highland Sanctuary, Environmental History in Tanzania's Usambara Mountains*, in the Mlalo Basin Rehabilitation Scheme (MBRS) in the Usambara Mountains in the 1940s-1950s, (Ohio: Ohio University Press, 1997), 126-134.

[94] Swai, "Crisis in Colonial Agriculture", 34.

> The Hehe system of cultivation (which is followed by the Wadzungwa too) destroys the agricultural possibilities of a country faster than any other I have seen and I agree with the recommendation that the question of reserving large tracts as forest reserve and removing the inhabitants should be more fully investigated and instructions have been sent to Assistant Conservator of Forests, Mbeya, to keep in close touch with the district officer, Iringa, and the Agricultural Officer of Iringa based at Iheme, with a view to a combined tour of the area East of Mufindi farm [tea farms] to select such areas and if possible arrange for the concentration of the population further away from the scarp face.[95]

The Conservator of Forests was ambivalent about establishing plantation forests as the best intervention measure, because he was worried about the expenses of a reservation in the poor market for local timber products in Tanganyika. The poor market for local timber in the Iringa district and the Southern Highlands Province at large was brought about by poor transport. Lack of professional expertise on scientific afforestation was the second factor which made the Conservator of Forests dislike afforestation

[95] TNA, Tanganyika Secretariat, File Name: Land Utilization on the Udzungwa Scarp in Conservator of Forests, Morogoro, to the Director of Agriculture, Morogoro 16/March/1939.

as the best method of intervening in the shifting cultivation in Iringa district. He was also scared of the risk of fire, as he argued that the 'natives' agricultural practices, which included burning grasses, were not compatible with afforestation.

Furthermore, the establishment of plantation forestry in Mufindi by the British colonial government was delayed because exotic tree species took too long to harvest. The British colonial government used an example of cypress tree species, which were claimed to take almost up to 40 years to be harvested. Because of this, some British colonial government officials were in favour of leaving this long-term programme of planting exotic tree species to the native authorities than to the central government.[96] Based on these reservations, the Conservator of Forests in Tanganyika was of the opinion that these factors could lead to greater expenses for the forestry department.[97]

The 1931-1939 report on soil erosion for the Southern Highlands Province, contrary to the view of the conservator of forests, suggested that the key solution for the soil erosion problem in Mufindi was afforestation. The report noted that destruction of forests in the high rainfall area was evident on the great escarpment between Mufindi and Dabaga. The

[96] TNA, Assistant Conservator of Forests-Mbeya to the District Officers-Iringa, "Tentative Memorandum on Native Afforestation, Southern Highlands Province" 26th, July, 1938. Acc. No. 24: File No. 19/4: Forestry.
[97] TNA, Land Utilization on the Udzungwa Scarp, op. cit.

report said that controlling the destruction of the forest reserves by the native population through the imposition of rules, enforced by district authority, was only limited to areas in the immediate proximity, while in the remote areas patrolling was difficult and hundreds of square miles of forests had been destroyed within living memory.[98] The area between Mufindi and Dabaga practised shifting cultivation partly because of high soil acidity and unsuitable crops planted in the area. The colonial state claimed that there was ruthless burning carried out by the local African population in the area between Mufindi and Dabaga on the pretext of counteracting such acidity. Furthermore, grass burning by the local population in the area between Mufindi and Dabaga was practised for the purpose of obtaining grazing areas during the rainy seasons. The misuse of fire by African peasants was an idea present among the Germans too. One of the early German foresters, Kruger, claimed that "African farmers [peasants] set fire to as much as a thousand hectares of forest in order to prepare a tiny parcel for sowing, and they burned large bushes in order to drive antelopes into snares".[99]

[98] TNA, The Southern Highlands Province Report on Soil Erosion by the Director of Agriculture, Acc. No. 77, File Name: Soil Erosion 2/33, 1931-1939.

[99] Thaddeus Sunseri. *Wielding the Ax, State Forestry and Social Conflict in Tanzania, 1820-2000* (Ohio: Ohio University Press, 2009), 51-52.

The suggestions by the colonial state to intervene in these practices by the local population were overwhelmingly focused on re-afforestation. The immediate solution by the state was simply prosecuting the offenders and the longer-term solution was re-afforestation of the areas affected.[100] The scenario was similar to that of the German colonial state, which aimed at replacing African shifting agriculture with intensive land use by applying fertilizer, technology, labour management and new crops in German East Africa between 1912 and 1914.[101] The Conservator of Forests in Tanganyika based in the Morogoro region was of the opinion that the forestry department in general had the role of imposing rural economic principles on the peasants by saying:

> The aim should be a rural economy based on the sound principles of correct land use and this will not be possible without considerable interference with the habits and customs of the African. He must be saved from himself and cured of many malpractices. He must be taught the value of his forests and this will entail a forest department strong in personnel and with assumed financial provision over a long period.[102]

In the areas close to tea farms, the colonial state claimed that there were few patches of natural forests because of shifting

[100] TNA, The Southern Highlands Province Report on Soil Erosion, op. cit.
[101] See, Sunseri, *Wielding the Ax,* op. cit.
[102] TNA 42054: The Conservator of Forestry, Morogoro, Forestry in Tanganyika, 1946.

cultivation. Most of the natural forests of the Mufindi district in the early 1930s were claimed to be denuded as a result of shifting cultivation. Shifting cultivation around tea farms was practised by the local African population to avoid couch grass-infested areas. As couch grass did not grow in mature forests, the peasants abandoned their old farms and went to clear a forested area, not because of soil fertility decline, but because couch grass had infested their farms. This practice led to most of Mufindi land being cultivated to exhaustion.[103] Behind the colonial state rhetoric, there were the potential economic prospects from the infant tea and pyrethrum industries in Mufindi. The Conservator of Forests put it in this way: "if tea and pyrethrum make stable industries [in Mufindi], there may be a demand for certain classes of timber, packing cases, plywood box frames, drying trays and fuel".[104] The statement by the Conservator of Forests implied that tea and pyrethrum farming would bring demands for timber. This meant that apart from ameliorating the micro-climate, the forests had economic gains in Mufindi.

The complaints of the settlers in Mufindi to the colonial state on shifting cultivation by the local African population culminated into the afforestation of the destroyed land and

[103] Mtuyi, "Mufindi Afforestation Project Report".
[104] TNA Acc. 336/IR/2 The Conservator of Forests to the Assistant Conservator of Forests, Mbeya, "Mufindi Planting Plan" 31.7.1939.

creation of two forest reserves close to their farms.[105] The depletion of the natural forest in Mufindi worried the tea settlers there. After the Second World War, the settlers expressed their fears that tea production in the area would decline tremendously if the microclimate was not preserved and improved. The forest department was called in to establish large-scale afforestation to replace the destroyed environment.[106] The tea planters were mainly Germans who had started planting tea in Mufindi from 1926.[107] In the German times Mufindi was a site of hunting buffalo and elephants by the German colonisers at the Iringa garrison. It was these early German settlers who started planting trees, especially cypresses, and according to them, the name Mufindi came from the early cypress trees, which the 'natives' referred to them as *mivinyi* (plural) and *mfinyi* (singular) which eventually became Mufindi.[108]

7. Conclusion

This article has articulated the major complaints of the settlers of Mufindi who invested on tea and wheat. These

[105] These forest reserves had different names during colonial rule. However, as it is now, they are referred to as Ihomasa and Iyegeya, Source: Interview with Joseph Sondi, 27.1. 2017. See the other scholars on this line like, Clement Gillman. "White Colonialism in East Africa: With Special Regard to Tanganyika Territory." *Geographical Review* 32, No. 4 (1942): 585-597, here 589.
[106] Mtuyi, "Mufindi Afforestation Project Report".
[107] See, Kangalawe, "The History of Labour Process in the Tea Industry, Mufindi, 1960-2010s," 36. See also, Voigt, *60 Years in East Africa*, 58-63.
[108] Voigt, *60 Years in East Africa*, 59-60.

complaints were directed at the state which seemed too docile to deal with the shortage of labourers and enforcing work discipline. From this debate one can conclude by three main arguments as far as the settler economy in Mufindi and Tanganyika at large is concerned. First, there was a high need of settlers to invest in the formerly German-owned plantations in Mufindi under the Custodian of Enemy Property. The poor response of the African labourers – the Hehe ethnic group – shocked the employers (settlers) who concluded that the root of the problem was to be found within the Hehe Culture. It was claimed that the Hehe drank a lot of local brew, which affected their work discipline. Because of that problem, the settlers were forced to seek solution from the state apparatus. Secondly, the settlers, beyond finding "laziness" in the African labourers, filed a lot of complaints such as taking more land from the Hehe who were judged as rapacious and reckless on sustainable land utilisation. Thirdly, the state response was neutral as it did not want to provoke the subsistence farmers on their customary land. While the colonial state perceived the problem of labour shortages to come from inability of settlers to provide environment that is conducive for labourers (pull factors), the settlers attributed almost all the problems to the state which failed to force the Hehe and other ethnic groups around Mufindi to work as it was in the colonies of Kenya, Southern Rhodesia and South Africa.

Endangered African Wild Dogs: Ecological Disturbances, Habitat Fragmentations, and Ecosystem Collapse in Sub-Saharan Africa.

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Abstract:
The African wild dog (Lycaon pictus) is among the species that have declined to the point where it is now listed as endangered by the International Union for the Conservation of Nature (IUCN, 2012). Formerly, the African wild dog population was estimated to span 39 African countries, but today, they have disappeared from much of their former habitats, now occupying just 7% of their former geographic range. They are presently found in only 14 countries primarily in the southern part of the continent, including South Africa, Tanzania, Kenya, Zimbabwe, Namibia, and Botswana. The largest populations are presently found in northern Botswana, the Selous Game Reserve in Tanzania, and in Kruger National Park in South Africa. In East Africa, the largest population is found in Tanzania and Kenya in the Serengeti-Maasai-Mara ecosystems and in the Selous Game Reserve. The current, global population is estimated to be between 3000-5000 which is comprised of less than 1400 mature individuals. Methodically, this study deeply underscored these data from critical library research i.e., archival sources, books and articles, and other published literatures across the globe which are pertinent to this research topic.

Key words: Wild dogs, Ecology, Habitat loss, Endangered Species, Sub-Saharan Africa.

1. Introduction

Africa is home to a large variety of animal species that are of concern from the perspective of global conservation and management, including African wild dogs/ painted dogs, rhinos, elephants, chimpanzees, gorillas, lions, and a variety of endemic sub-Saharan African plants. Unfortunately, these large numbers of wildlife species are currently in decline, primarily as a result of conflicts with human encroachment, which is contributing to the destruction and degradation of the natural ecosystems and thus threatening the rich biodiversity of sub-Saharan Africa.[1]

The endangered status of wild dogs is paradoxical, because they possess several life-history characteristics expected to promote population resiliency. They are highly fecund[2] very adaptable to various types of ecological ecotones, weather, seasons, topography, and climates, and able to disperse long

[1] R. Woodroffe, et. al. "Livestock Predation by Endangered African Wild Dogs (*Lycaon pictus*) in northern Kenya." *Biological Conservation* 124 (2005): 225-234.

[2] T. K. Fuller, et.al. "Population Dynamics of African Wild Dogs." In D. R. McCullough and R.H. Barrett eds., *Wildlife 2001: Populations* (London: Elsevier Applied Science, 1992), 1125-1139.

distances to colonize new areas[3]. Their high reproduction rates and the adaptive behaviours that they possess make them able to live in various habitats and ecozones has not however, guaranteed their survival and multiplication in sub-Saharan Africa and their population size is continuing to decline as a result of sensitivity to ongoing habitat fragmentation, conflict with human activities, and infectious disease.[4]

Thus, this paper surveys various literature pertinent to biodiversity and ecological fragmentation in Sub-Saharan Africa and its adverse consequences to the Wild dogs' survival. This article is solely based on thorough literature reviews; thus, it will highlight, examine, and discuss in detail their unique life history, habitat physiognomy, biogeography, and how these relate to key factors that threatens the survival of African wild dogs. It will also address ecological conservation and management issues that need to be taken into consideration to rescue this species from total extinction in Sub-Saharan Africa, and in Tanzania specifically.

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[3] R. Woodroffe, "Ranging Behaviour of African Wild Dog Packs in a Human-Dominated Landscape." *Journal of Zoology,* 283 (2011): 88-97.

[4] R. Woodroffe and C. Sillero-Zubiri. "*Lycaon pictus*: The IUCN Red List of Threatened Species", (2012)http://www.iucnredlist.org/details/12436/0; C. Gortazar et.al., "Diseases shared between wildlife and livestock: a European perspective." *European Journal of Wildlife, Res* 53 (2007): 241-256.

2. Background Information

This section tries to underscore key issues pertinent to African wild dog's life history, general behavioural and physical characteristics which are quintessential to them. The African wild dogs are a member of the Canidae (dog) family, and the only representative of its genus.[5] They are a medium-sized species with large ears and a characteristic brightly coloured mottled fur pattern. They can be distinguished from other dogs because they have fewer toes and a unique dentition specialized for their carnivorous diet. The African Wild dog lives in cohesive and cooperative packs of 10-30 individuals, with a strict social hierarchy. Highly sociable, they hunt together, share food, and assist each other with raising offspring and other activities. African Wild dogs are obligate cooperative breeders, so most of the pups are offspring of the alpha male and female. Females begin breeding at approximately 3 years of age, with an average female breeding age of approximately 5.5 years[6]. Litters of 2-20 pups are born after a gestation period of 70 days. After birth the mother stays with the pups for a few weeks and the rest of the pack care for them. In these cohesive and cooperative packs, the young are cared for by both male and female adults. Upon reaching maturity, it is the females that

[5] K. A. Leigh, et. al., "Loss of Genetic Diversity in an Outbreeding Species: Small Population Effects." *The African Wild dog (Lycaon pictus) Conservation Genetics* 13 (2012), 767.
[6] Woodroffe and Sillero-Zubiri, "Red List of Threatened Species".

migrate to join new packs[7]. African wild dogs are scavengers and opportunistic predators that hunt small to medium-sized ruminants, such as impalas, kudus, wildebeest, Thomson's gazelles and other various species of antelopes. Before the hunt, they will circulate among other pack members, vocalizing, sniffing and touching each other. They are cooperative and effective hunters that chiefly predate on medium-sized antelope species.[8] While the dogs weigh 20-30 kg, they typically hunt prey weighing approximately 50 kg, and in large groups they can kill animals as large as 200 kg.[9]

3. The African Wild Dogs Population Decline: A Critical Review and Discussion

Historical data indicate that wild dogs were formerly distributed throughout sub-Saharan Africa, from desert to mountain summits of North and West Africa, and probably were absent only from lowland rain forest and the driest desert. However, over the last five decades, the African wild dog population has declined dramatically. The wild dogs have disappeared from 25 of the 39 countries in which they were previously found, and only 6 populations are believed

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[7] G. S. A Rasmussen. "Livestock Predation by the Painted Hunting Dog (*Lycaon pictus*) in a Cattle Ranching Region of Zimbabwe: A Case Study." *Biological Conservation* 88 (1999): 133– 139.

[8] R. Woodroffe, et. al. "African wild dogs (*Lycaon pictus*) can subsist on small prey: implications for conservation." *Journal of Mammals* 88 (2007): 181-193.

[9] C. Carbone, et. al. "Feeding Success of African wild dogs (*Lycaon pictus*) in the Serengeti: The Effects of Group Size and Kleptoparasitism." *Journal of Zoology* 266, No. 2 (2005), *153*.

to number more than 100 animals. Presently, it is believed that between 3,000 and 5,500 dogs remain in 600-1,000 packs only and most of these are to be found in eastern and southern Africa[10]. The African wild dogs have become one of the most critically endangered species in Africa. Once nearly 500,000 wild dogs roamed Africa between 1950-1960s, this period was a high time in the history of wild dogs rise in population until its decline in the early 1990s. From 1990-2000s, it is when they virtually declined in some parts, mostly in sub-Saharan Africa and now there is only an estimated 3,000 to 5,000[11], and then re- appearances in the 2005 while greatly reduced in numbers due a few reasons such as the encroachment on farmer and rancher lands, as well has habitat fragmentation. Also, the drastic reduction in the wild dog population has been attributed to several factors, among them, human population growth and farming activities, deterioration of their habitat and contact with domestic dogs and the diseases they carry, change in reproduction behaviours, and with genetic variation and a new strand of canine distemper which threatens the species with further decline.

[10] J. R. Malcolm and C. Sillero-Zubiri. "Recent records of African wild dogs (*Lycaon pictus*) from Ethiopia." *Canid News* 4, No. 2 (2001).
[11] *Ibid*.

In the 1960s, research on African wild dogs in the Serengeti ecosystem documented more than 100 individuals, declining rapidly to 40 individuals by the end of the 1970s[12]. By 1985, only three packs were regularly seen in the area: the Salei pack, which would regularly range from central to southeastern plains; the Ndoha pack found in the western Serengeti; and the mountain pack, reaching to the most eastern Serengeti plains nearby Maasai Mara National Park on the Kenyan boarder.[13] By 1991, the wild dogs in Serengeti National Park were almost wiped out and have not been seen since. It is believed that this extinction was due to an outbreak of viral diseases including rabies and canine distemper virus that were induced by stress caused by intervention, particularly the practices of vaccination, immobilisation, and wild dog collaring[14]. In early 1993, some single sex groups of African wild dogs were spotted in the wider ecosystem around the park, and then from 2000 onwards, repeated complaints from Maasai and Sonjo livestock pastoralists about flocks being attacked and depredated by the wild dogs were reported to the Ngorongoro district authorities. The establishment of

[12] Carbone, "Feeding Success of African wild dogs"; Woodroffe, et al., "Livestock predation by endangered African wild dogs"; P. B. Stearns & S. C. Stearns eds., *Watching from the Edge of Extinction* (New Haven & London: Yale University Press, 1999).

[13] Carbone, "Feeding Success of African wild dogs"; Stearns and Stearns, *Watching from the Edge*.

[14] Stearns and Stearns, *Watching from the Edge;* S. C. Gascoyne, et. al. "Rabies in African wild dogs (*Lycaon pictus*) in the Serengeti region, Tanzania." *Journal of Wildlife, Dis.* 29 (1993): 396-402.

Serengeti wild dog restoration and monitoring project with the aims of increasing their numbers and re-establishing a healthy wild dog population in the Serengeti ecosystem. This paper explores some of the reasons behind the decline in number and even disappearance of these creatures in many parts of Western Arica region, Southern and Eastern Africa and thus provides several proposed solutions to stem this. Mitigation measures are ranging from habitat management and conservation to restoration programs so as to rescue these animals from total disappearance on earth's surface.

3.1 Western Africa

In west and central Africa, Croes et al. reported that the current status of the African wild dog in West African region is largely unknown[15]. The vast areas of unspoiled Sudano-Guinean savannah and Guinea-Congolese forest that stretch from western northern Cameroon to central Africa hosts very few of these endangered species. Similar to other sub-Saharan countries, the wild dogs in sub-Saharan region are facing numerous threats, mainly caused by human encroachment and a lack of enforcement of laws and regulations in hunting concessions[16]. The Sudano-Guinean savanna and woodlands is a degrading natural habitat; a

[15] B. Croes. *Distribution update Status of the African wild dog in the Bénoué Complex* (North Cameroon: IUCN/SSC Canid Specialist Group, 2012).
[16] *Ibid.*

fragmented ecosystem because of anthropogenic induced factors that threaten wildlife populations. As a result, there has been a tremendous decrease in the number of wild dogs in all over sub-Saharan current ecosystems such as the case of Zambezian woodlands of the southern part of Africa.

The West African wild dog survives mainly in Senegal and potentially very few species in the western complex forests in Benin, Burkina Faso, Niger, and Cameroon. The principal threats to West African wild dogs include habitat fragmentation, conflict with human activities, road kills, and infectious disease[17]. The West African wild dog is a subspecies of the African wild dog native to West Africa, which is limited to these regions only. It is classified as Critically Endangered by IUCN, as it was estimated that 70 adult individuals are left in the wild. Wild dogs have disappeared from much of their former range; less than 6% of the species' historical range is still known to support resident populations. Most of the wild dogs have been virtually eradicated from West Africa, and greatly reduced in central and northeastern Africa[18]. As noted in the beginning, the largest populations remain in southern Africa (especially northern Botswana, western Zimbabwe, eastern Namibia, and South Africa), Kenya and Tanzania in eastern Africa as well.

[17] Croes, *Distribution Update Status of the African Wild Dog*.
[18] *Ibid.*

3.2 Southern Africa

Although African wild dogs were once distributed through much of sub-Saharan Africa, they are now absent from most of their range and are classified as endangered by the IUCN. The main reasons for their demise are widespread destruction of habitat, loss of prey, and direct persecution through hunting, snaring and poisoning. Botswana is one of the last wild dog strongholds, with 700-800 individuals living in northern Botswana. In contrast, wild dogs are seen only infrequently in the south-eastern part of the country, largely because of conflict with livestock farmers[19]. In this southern part of the continent, South Africa is one of only seven countries with a viable population of African wild dogs (Lycaon pictus). As per the national population in 2017, there was 372 adults and yearlings and comprised three subpopulations in Kruger National Park, an intensively managed metapopulation established through reintroductions into isolated, fenced reserves, and a free-roaming population that occurs naturally outside protected areas. The Kruger supports a substantial population which has declined over time[20] while the metapopulation is the only subpopulation that has increased significantly over time (both in population size and number of packs), likely due to intensive conservation efforts and the reintroduction of wild

[19] Woodroffe and Sillero-Zubiri, "Red List of Threatened Species".
[20] *Ibid.*

dogs into 15 additional reserves since 1998[21]. The free-roaming subpopulation has remained small but stable, even though the number of packs has declined due to anthropogenic threats. The overall national population has remained stable even though the number of packs has increased. Kruger has consistently supported the highest proportion of the national population over the last two decades. Nevertheless, the contribution of the metapopulation has increased significantly over time. Despite the differences in survey effort among the three subpopulations, South Africa has a small population approximately 500 wild dogs but stable population of them, with the metapopulation contribution becoming increasingly important[22]. The circumstances in the country necessitate, and demonstrate the benefit of, intensive, adaptive management for the national population of wild dogs[23].

South Africa has a stable wild dog population that is evident by the national population growth rate on zero, because in this country the wild dog population is relatively well protected than any other countries in sub-Saharan Africa, and collectively can be considered a stronghold for wild dogs

[21] S. Nicholson, et. al. "A 20-Year Review of the Status and Distribution of African Wild Dogs (*Lycaon pictus*)." *South Africa African Journal of Wildlife Research* 50, No. 1 (2020), 8.
[22] Woodroffe and Sillero-Zubiri, "Red List of Threatened Species".
[23] Woodroffe and Sillero-Zubiri, "Red List of Threatened Species"; see also Nicholson et. al., "A 20-Year Review of the Status and Distribution of African Wild Dogs".

in Africa. Comparing this estimate to the other large, protected and documented populations in Africa, northern Botswana also has a stable population (0% annual growth) and Selous in Tanzania has a growing population (3.8% growth)[24]. Examples from other non-protected populations in Africa, however, show dramatic and widespread declines in their populations[25]. This information highlights that the relatively small but stable population in South Africa is vitally important in maintaining a viable and genetically diverse population in Africa. However, as the growth rate is on zero, any shifts in reproduction and survival within each subpopulation could drive the national population towards more systematic decline in the near future.

In Zimbabwe, Hwange National Park is also home to one of the most elusive predators on the continent, the endangered African wild dogs; and approximately 160 wild dogs live in Hwange and its environments. As more people settle around Hwange, the African wild dog population faces increasing pressure in the form of habitat fragmentation and human-wildlife conflict. The most pressing threat to the wild dogs' survival, however, is poaching[26], because the poachers endanger Hwange wild dogs' survival as it has recently

[24] S. Creel and N. Creel. *The African Wild Dog: Behavior, Ecology, and Conservation* (Princeton: Princeton University Press, 2002).
[25] Woodroffe and Sillero-Zubiri, "Red List of Threatened Species".
[26] *Ibid*.

evinced. With limited employment opportunities and sporadic rainfall that negatively impacts farming yields, bush meat hunting has gained popularity over the past several years to make a living[27]. Poachers in Zimbabwe like any other parts of sub-Saharan Africa commonly use wire snares, which kill large animals indiscriminately, and the wild dogs are particularly vulnerable to injury or death by snares because they cover a lot of ground while hunting[28]. The wild dogs travel more than 12 miles per day on average in searching for foods, something that make them fell to snares, poachers sometimes poison water sources with cyanide, although poachers normally targeting elephants for their ivory, but it kills a variety of other species in the process[29]. Stemming the tide of poaching within Hwange National Park has proven challenging for the resource-strapped Zimbabwe Parks and Wildlife Management Authority not to mention the fact that protecting the park itself is not sufficient in the country[30]. Wild dogs and other species frequently travel beyond the park's borders into its buffer zones, where the risk of encountering poachers and snares is much higher[31].

Hinting at the effect of extrinsic factors such as prey availability on ranging behavior, home ranges are generally smaller where prey are relatively sedentary (e.g., Kruger

[27] Woodroffe and Sillero-Zubiri, "Red List of Threatened Species".
[28] *Ibid*.
[29] Fuller, et.al., "Population Dynamics of African Wild Dogs".
[30] *Ibid*.
[31] Woodroffe and Sillero-Zubiri, "Red List of Threatened Species".

National Park[32]), while dogs living in areas with seasonal abundances of migratory prey (e.g., the Serengeti short-grass plains in Tanzania) have the largest known home ranges. In the Okavango Delta in northern Botswana, seasonal variation in forage quality and quantity related to annual flooding strongly influences prey distributions and possibly contributes to comparatively complex patterns of resource availability for wild dogs, but such factors have not been considered in previous wild dog ranging studies[33]. Intrinsic factors such as pack size[34] or pack composition may also influence ranging patterns, and while reproductive status may not affect ranging patterns in social groups to the extent that it does solitary animals, range contraction during denning is well documented in African wild dogs[35]. In recent years, the wildlife conservation programs on wild dogs were introduced and the dogs were released into the Northern Tuli Game Reserve (NOTUGRE)[36]. This reintroduction was launched in order to facilitate the establishment of a viable

[32] Fuller, et.al., "Population Dynamics of African Wild Dogs".
[33] Wilfred, "Conservation of Endangered African Wild Dogs (*Lycaon pictus*) in Western Tanzania: A Call for Research and Action." *Huria Journal* 24 (2020).
[34] M G. L. Mills and M. L. Gorman. "Factors affecting the density and distribution of wild dogs in the Kruger National Park." *Conservation Biology* 11 (1997): *1397–1406*; Creel and Creel, *African Wild Dog*.
[35] Creel and Creel, *African Wild Dog*.
[36] Woodroffe and Sillero-Zubiri, "Red List of Threatened Species"; see also Nicholson et. al., "A 20-Year Review of the Status and Distribution of African Wild Dogs".

population of wild dogs in the Limpopo Valley region of eastern Botswana[37].The wild dogs originate from the Marakele National Park in South Africa and were donated to NOTUGRE by South African National Parks (SANParks)[38].

In 2006, the governments of Botswana, South Africa and Zimbabwe signed a trilateral memorandum of understanding to establish the Limpopo-Shashe Transfrontier Conservation Area (L-STFCA). This area incorporates the Northern Tuli Game Reserve in Botswana, Tuli Circle in Zimbabwe, and Mapungubwe National Park and World Heritage Site in South Africa. In the Okavango Delta of northern Botswana, wild dogs are said to range over 3000 km2 including the area beyond the core conservation area[39].

3.3 East Africa

African wild dogs are generalist predators, occupying a range of habitats including short-grass plains, semi-desert, bushy savannahs, and upland forests. While early studies in the Serengeti National Park, Tanzania, led to a belief that wild dogs were primarily an open plains species (Figure 1), more recent data indicate that they reach their highest densities in thicker bush and woodland (e.g., Selous Game Reserve, Tanzania; northern Botswana). Several relict populations occupy dense upland forest e.g., Harenna Forest in

[37] *Ibid.*
[38] Creel and Creel, *African Wild Dog*; Woodroffe and Sillero-Zubiri, "Red List of Threatened Species", op. cit.; Nicholson et. al., "A 20-Year Review of the Status and Distribution of African Wild Dogs".
[39] *Ibid.*

Ethiopia[40]. Wild dogs have been recorded in desert[41], although they appear unable to establish themselves in the southern Kalahari, and in montane habitats[42], although not in lowland forest. It appears that their current distribution is limited primarily by human activities and the availability of prey, rather than by the loss of a specific habitat type[43].

The increasing isolation of wild dog populations in East Africa presents a serious conservation problem, precisely because the species ranges widely and usually finds itself in a human dominated hostile environment outside protected areas[44]. For instance, in Maasai Mara Kenya, a pack can cover over 650 km² outside Maasai Mara Game Reserve including the area beyond the core conservation area. While the survival and ecological requirements of wild dogs can be met in an area of about 10,000 km²,[45] human activities affect wild dogs even in larger areas. On the other hand, it has been

[40] Malcolm and Sillero-Zubiri, "Recent records of African wild dogs from Ethiopia".

[41] *Ibid*.

[42] *Ibid.*

[43] K. A. Alexander and M. J. G. Appel. "African Wild Dogs *(Lycaon pictus)* Endangered by a Canine Distemper Epidemic among Domestic Dogs near the Masai Mara National Reserve, Kenya." *Journal of Wildlife, Dis.* 30 (1994): 481-485.

[44] Woodroffe et. al., "Livestock Predation"; Woodroffe et. al., "Implications for Conservation"; Woodroffe, "Ranging Behaviour".

[45] R. Woodroffe and J. R. Ginsberg. "Conserving the African wild dog (*Lycaon pictus*): Diagnosing and treating causes of decline." *Oryx* 33, No. 2 (1999): 132-142.

suggested that a typical conservation area should be at least 3500 km² to ensure the survival of wild dogs[46]. For example, fragmented habitat leads to isolation of subpopulations, thus intensified kleptoparasitism due to reduced source-sink dynamics in prey populations. Vegetation cover and density influence both kleptoparasitism and hunting efficiency. Dense vegetation reduces prey detectability by wild dogs. Contrariwise, open habitat intensifies competition from kleptoparasites[47]; because wild dogs live at low densities and in most cases, packs can hardly defend their kills depending on the number of kleptoparasites at carcasses and their ability to locate wild dog kills[48].

In both Kenya and Tanzania (Masai Mara-Serengeti ecosystem), the prey density is a trade-off between kleptoparasitism and food intake. As prey density increases, competitor's density also increases thereby intensifying kleptoparasitism. For instance, prey densities in Selous Game Reserve are lower compared to Serengeti and Ngorongoro, but the density of wild dogs in the reserve exceeds the other protected areas.[49] Wild dogs are also present in the Ugalla ecosystem of western Tanzania whereby the Ugalla Game

[46] Woodroffe et. al., "Livestock Predation"; see also Wilfred, "Conservation of Endangered African Wild Dogs in Western Tanzania".
[47] M. L. Gorman. "High hunting costs make African wild dogs vulnerable to kleptoparasitism by hyaenas." *Nature* 391 (1998): 479-481.
[48] S. R. Creel and N. M. Creel. "Six ecological factors that may limit African wild dogs (*Lycaon pictus*)." *Animal Conservation* 1 (1998): 1-9.
[49] Creel and Creel, "Six ecological factors that may limit African wild dogs".

Reserve hosts a small, isolated, and poorly studied population of African wild dogs which are critically endangered species. Like many other parks and game reserves in East Africa, the loss of wildlife and wildlife habitats because of logging, bushmeat hunting and other unsustainable livelihood activities in the area cannot be overstated[50]. Indeed, this has started signaling the uncertainty of future Ugalla wild dog survival because the habitat is so fragmented and no clear deliberate efforts to make the species decline impossible. There is a call by the ecologists and the general public for the mutual and collaborative campaigns towards the abolishment of wildlife poaching in the hunted areas, improving connectivity between hunting and non-hunting areas to provide refuge for severely exploited species and regular monitoring to assess impacts of hunting[51].

Unfortunately, these are yet to be achieved in western Tanzania although they would undoubtedly ensure the availability and sustainable use of wildlife resources for both conservation purposes, research, education, and local livelihoods. Recent research, for example, indicates that most of the animals in Ugalla ecosystem apart from the wild

[50] Wilfred, "Conservation of Endangered African Wild Dogs in Western Tanzania.
[51] Wilfred, "Conservation of Endangered African Wild Dogs in Western Tanzania.

dogs are removed through poaching[52]. Moreover, trends in trophy hunting and legal subsistence hunting have reached the point where individuals targeted are not old enough and hunting quotas are hardly realised[53], and there is no clear policy to supervise this or any other standardized mechanism and frameworks to protect the endangered organisms from disappearance due to activities of whether legal or illegal hunting in most of the protected areas across the East Africa[54].

4. Wild Dogs' Habitat Fragmentation in Sub-Saharan Africa

The habitat destruction and the degradation of natural ecosystems typically leads to fragmentation, the division of habitat into smaller and more isolated fragments (patches) separated by a matrix of human-transformed land cover. This is caused by roads in proximity to natural habitats, along with related infrastructures, and other land use activities and developmental projects near wildlife habits areas. The reduction in the amount of suitable habitat, dissection of what remains into isolated patches, creation of barriers to movement and dispersal between adjacent habitat patches, and greater exposure to human land uses along fragment edges, all initiate long-term changes to the

[52] *Ibid*.
[53] *Ibid*.
[54] Alexander and Appel, "African Wild Dogs Endangered by a Canine Distemper Epidemic".

structure and function of the remaining fragments[55]. These factors affect species directly, as well as their interactions with other animals in the ecosystem; all which contribute to ecological disruption of the habitat as a whole.

Habitat fragmentation can have varying physical and psychological effects depending upon the scale at which the disruption is perceived[56]. A large mammalian predator, for example, may be able to travel from one forested patch to another through agricultural areas with little effect. A small mammal may not be able to make the same trip because of increased vulnerability to predators or hostile environmental conditions. In a study conducted in Banff National Park in Alberta, Canada, habitat patches between roads became unique home ranges of smaller ranging species, such as the marten, rats, and squirrels[57]. Even within wildlife

[55] R. T. Forman and L. E. Alexander. "Roads and their major ecological effects." *Annual Review of Ecological Systems* 29 (1998): 207-231; S. M. Alexander and N. M. Waters. "The effects of highway transportation corridors on wildlife: a case study of Banff National Park." *Transportation Research Part C* 8 (2000): 307-320.

[56] J. A. Wiens. "Wildlife in patchy environments: metapopulations, mosaics, and management." In D. McCullough ed., *Metapopulations and Wildlife Conservation* (Cambridge: Cambridge University Press, 1996).

[57] Alexander and Waters, "Effects of Highway Transportation Corridors on Wildlife"; Forman and Alexander "Roads and their major ecological effects"; see also B. A. Wilcox and D. D. Murphy. "Conservation strategy: the effects of fragmentation on extinction." *American Naturalist* 125 (1985): 879-887.

conservation habitats meant to protect species, roads can cause fragmentation of the natural habitats resulting in very isolated smaller patches surrounded by uninhabitable or hostile human environments.[58] Fragmentation of wildlife habitats has been documented in varying habitats, resulting in disturbance in wild animals' population equilibrium by disrupting patterns of their movements and behavior that contribute to high mortality rates, injuries, declining reproduction, resource depletion, and an overall decrease in biodiversity. Research in Banff National Park in Alberta, Canada on road fragmentation showed that modern infrastructure prevents animals from crossing, and creates barriers that disrupt movement patterns both directly, by blocking access, and indirectly, as animals fear and avoid crossing, even though they could do so.[59]

These results in Banff are concordant and correlative to other similar studies conducted on sub-Sahara African wildlife management in which they revealed that road construction adjacent to or intersecting protected areas has negatively impacted the demographic distribution movement pattern of wild animals, altered animal communities, reduced biological diversity, and increased the threat of extinction[60]. Despite documentation of these negative outcomes in other locations, the barrier effect

[58] D. R. McCullough ed., Metapopulations *and Wildlife Conservation*. (Washington, DC: Island Press, 1996).
[59] Forman and Alexander, "Roads and their major ecological effects."
[60] *Ibid*.

remains little studied with regard to road fragmentation in sub-Saharan Africa.[61]

Regardless of the paucity of research on barriers, sub-Saharan African wildlife ecology is highly fragmented and characterized by several isolated patchy islands of biodiversity that serves as a "refugia" for the very few remaining endangered animal species. For example, forest, landscape, and road fragmentation near wildlife reserves that preserve rare and endangered species becomes increasingly evident nearer wildlife's habitats. Development projects, agricultural activities and human population growth continues at an alarming rate; more land is cleared or altered for human use, roads are constructed crossing through wildlife protected areas, profoundly altering the landscape and biodiversity of distinct ecological regions.[62]

MacArthur and Wilson developed the Island Biogeography Theory to explain the impact of this disruption, and the formation of isolated islands of habitat on biodiversity[63]. According to this theory, islands of habitat that form from fragmentation disrupt the continuity of a former and similar

[61] *Ibid.*
[62] G. B. Cox. *Conservation Biology* (Dubuque, Iowa: William C. Brown Publishers, 1997).
[63] R. H. MacArthur and E. O. Wilson. "The Theory of Island Biogeography." In *Monographs in Population Biology* (Princeton: Princeton University Press, 1967).

landscape that was endemic to a particular species. Since an island can be understood as "a self-contained region whose species originate entirely by immigration from outside the region"[64], these remnant patches of habitat, national parks, and nature reserves can be considered islands. Because of isolation, evolutionary processes are impacted, as animals are unable to migrate or interact, decreasing the gene flow that usually supplies the effects of mutation through natural selection. Ecosystem fragmentation is essentially a disruption of the continuity of a former and similar landscape that was endemic to the particular species.

According to MacArthur and Wilson, larger islands will have a greater number of species than smaller islands, and the species diversity found on a particular undisturbed island is determined solely by the relationship between the number of species found immigrating to the island and the rate that populations on the island become extinct.[65] Rates of immigration will decrease over time as more species become established; rates of extinction will increase over time: when more species are present, more have the chance of going extinct in that particular island environment.[66] This is a species–habitat/ecology relationship that tries to explain how only one variable shift in an ecosystem may trigger or distract the larger and wider part of the ecosystem. 'Area'

[64] M. L. Rosenzweig. *Species Diversity in Space and Time* (Cambridge: Cambridge University Press, 1995).
[65] MacArthur and Wilson, "The Theory of Island Biogeography".
[66] *Ibid*.

and 'isolation' are identified as two key island features that impact this balance as larger areas can support more species, and isolation decreases movement patterns. In other words, the number of species increases with island area, but decreases with reduced area. For instance, humans migrating into an established ecosystem are causing other animals to go extinct like the nomadic pastoralists Maasai of East Africa or the Palaeo-Indian Native people migrations to North America and Australia for example, contributed to the extinction of the certain animal species; hence, humans were a good example of variable shift in those ecosystems.

These human disturbances have created artificial habitats for wildlife characterized by physical and functional ecological fragmentations. For instance, in the Serengeti ecosystem, the traditional construction of Bomas by Maasai pastoralists and houses by Sonjo farmers adjacent to protected areas have caused severe ecological fragmentation as animals attempt to avoid human contact. This has resulted in the creation of several fragmented or disconnected habitats that accommodate a minimum viable population, which increases population vulnerability. In turn, these patchy and isolated habitats dictate the larger movement of animals, their reproduction patterns, and limits hybridization, resulting in a weaker genetic pool. Furthermore, animals are more susceptible to climate and environmental stress because they inhabit areas reduced in size and resources,

causing slight changes in the environment to have greater impacts overall. Thus, in these small habitable areas, the animal's competition for the resources will increase, and there will be less ecological interactions between biotic and abiotic components on the landscape, contributing to increases in communicable contagious diseases that further increase the risk of extinction.

The alarming population decline of African wild dogs from much of their historical range is directly correlated with human population expansion and related anthropogenic pressures. Specific characteristics of African wild dogs, particularly their wide-ranging behaviors, life-history characteristics and inbreeding avoidance, and natural predating behaviors, increases their risk of encountering human activities, conflict with farmers, and exposure to infectious disease, which all accelerate and escalate their vulnerability[67]. They typically have large home ranges and travel long distances. However, because of human population expansion and the associated contraction of their habitats, they are now confined to agro-pastoral and pastoral communal lands.[68] With significantly decreased home ranges, dogs still wander long distances, often away from the boundaries of protected areas and reserves, where they are at much higher risk of conflict with human populations.[69] In

[67] R. Woodroffe and J. R. Ginsberg. "Edge effects and the extinction of populations inside protected areas." *Science 280* (1998): 2126-2128.
[68] Rasmussen, "Livestock Predation by the Painted Hunting Dog".
[69] Woodroffe et. al., "Livestock Predation".

fact, most of the kills by wild dogs occur outside protected areas in communal lands.[70]

Once outside protected areas, as part of their natural predator behavior, they frequently attack and kill domestic livestock. Historically wild dogs were actively destroyed through institutional culling, but laws enacted in the early 1970s legally protect them in most regions where they are common[71]. Unfortunately, this has not stopped the practice, and reports of them being hunted, snared and killed by farmers have been documented in Loliondo district Tanzania. In Benoue Complex Game Reserve in Northern Cameroon and in Zimbabwe[72]. Although there is evidence that most agro-pastoralists and pastoralists exaggerate their complaints related to livestock depredation by wild dogs, they are still a common target.[73]

Ecological instability, fluctuation and disturbances causes populations to become segregated, which can contribute to inbreeding depression (reduced biological fitness and population bottleneck), decrease genetic variability, and in

[70] Rasmussen, "Livestock Predation by the Painted Hunting Dog". Woodroffe, et al. (2005), op. cit.
[71] J. H. Fanshawe, et.al. "The wild dog: Africa's vanishing carnivore." *Oryx* 25, No. 3 (1991): 137-146.
[72] Rasmussen, "Livestock Predation by the Painted Hunting Dog".
[73] Woodroffe et al., "Livestock Predation"; Rasmussen, "Painted Hunting Dog".

turn, impact the long-term fitness of species. The usual migration of animals that help maintain population dynamics are also limited. In the case of African wild dogs, wildlife ecological disturbances have had a profound impact on population numbers because of their natural inbreeding avoidance behaviors. Since pack members are often all offspring of the alpha pair, there are few breeding opportunities within the pack. Instead, animals may leave in search of mates in other packs. As a result, the death of an alpha often causes pack disintegration. Although these dispersal behaviors have the advantages of increasing gene flow and ensuring more robust genetic variability, the fragmented habitats and threats outside of reserve boarders have negative effects on dispersal success while compromising the survival of these out-breeding populations. Decreasing populations of African wild dogs may also affect reproductive success as chances of raising a pup to maturity is correlated with the age of the mother and the size of the pack. Pack size influences reproduction rates because there are more adults to care for and guard the pups, hunting tends to be more successful and uses less energy (Figure 1), they are better at defending kills, and they are more likely to win clashes with other packs. With smaller populations and lower life expectancy, fewer animals are likely to reach maturity.

The ecology and habitat utilization are closely related to both prey availability and predator avoidance behaviors, influencing patterns of movement and interaction. Although

it has been widely reported that predation by larger carnivores threatens wild dog populations in sub-Saharan Africa[74], the research is conflicting. Research in Kenya, Tanzania, Zimbabwe, Namibia, Botswana, and South Africa has reported that predation by lions or lions and spotted hyenas is the primary cause of natural mortality in wild dogs[75]. Simulation experiments using audio recording playbacks of lion roars and hyena whoops to intimidate wild dogs revealed that dogs were more likely to run away, stand their ground or partially approach in response to lion roars when in open environments than when in dense habitats, where the risk of ambush is greater. Interestingly, the experimental observations revealed that the wild dogs were not afraid of hyena whoops. From these simulations, the researchers deduced that hyenas do not pose serious dangers to the lives of wild dogs and their pups. Experimental research on wild dog habitats suggest that lions currently represent an immediate high-level threat to wild dogs that is invariably best avoided, whilst the threat from hyenas may not be so great or perhaps is simply unavoidable.

Relevant research on an African wild dog population in Zimbabwe, however, reported the spotted hyenas (*Crocuta crocuta*) that direct predation of adult wild dogs by larger carnivores was rare, although spotted hyenas (are believed to

[74] Mills and Gorman (1997).
[75] Woodroffe et al., "Implications for Conservation".

impact pup and juvenile survival[76]. This report also demonstrated only occasional avoidance of lion (*Panthera leo*) in high-density areas during breeding periods, although the researchers did report that predator avoidance was related to long-distance movements of den sites in some pack years[77].

Regardless of their direct impact on wild dog populations, lions and hyenas also present an interspecies competition threat that appears strong enough to hinder population size of wild dogs and promote higher extinction risk. As human encroachment forces higher concentrations of prey into smaller areas, apex predators such as lions and hyenas are attracted to the region where they outcompete wild dogs for kills. As such, wild dogs may be driven away to peripheral areas free from competition for kills and the danger of predators. Lower access to prey can cause starvation or force them outside of protected areas to predate on livestock, increasing their risk further.

Higher densities and competition with other predators also result in kleptoparasitism, whereby sometimes the wild dog's kills are grabbed away from them by lions and hyenas and therefore decreasing food supplies in relation to energy expenditure[78] Using isotope elimination methods to quantify the free-living energy demands, Gorman et. al. calculated

[76] Leigh, "Loss of Genetic Diversity".
[77] *Ibid.*
[78] Gorman, "High Hunting Costs"

and quantified the energy budgets of wild dogs used in hunting and killing[79]. Their results showed some small losses of food to lion and hyena kleptoparasites, which contributed to an exponential increase in required hunting time, range, and daily energy demands. They note that a 25% increase in kleptoparasitism would require more than 12 hours of hunting per day and would therefore be unsustainable[80]. This demonstrates why wild dogs are particularly vulnerable to local extinction in areas where their main kleptoparasites are abundant and the competitions for the dietary resources is extremely stiff.

Moreover, landscape degradation and fragmentation are the main anthropogenic factors that have been commonly associated with the emergence of diseases in wildlife. With increased interaction with human settlement, African wild dogs interact more frequently with domestic dogs and livestock, contracting infectious diseases from the domestic animals that further reduce their numbers. Contagious disease in livestock has been reported in northern Tanzania and has been listed as the most significant factor responsible for livestock losses in the western Serengeti. The highest frequencies of deaths due to diseases are believed to be a result of wildlife-livestock interaction epidemics, experienced in villages located closest to the protected areas.

[79] *Ibid*.
[80] *Ibid*.

This may be because local communities living close to the protected areas illegally graze their livestock inside the parks, especially during dry seasons. Furthermore, interactions between wild and domestic animals increase the risk of disease transmission[81]. This encroachment of protected areas by grazing also contributes to further wildlife habitat degradation.

Although African wild dogs are not as impacted by poaching as some other species, uncontrolled poaching is a threat to wildlife in general and affects both predator and prey numbers, affecting wild dogs as members of the wider ecosystem. Because African wild dogs occur at low densities in regard to their large home ranges, they are limited by competition with some larger sympatric carnivores, namely lions (*Panthera leo*) and spotted hyenas *Crocuta crocuta*[82]. With the decreasing number of wild animals due to poaching, it has also greatly affected home ranges of African wild dogs and their manipulation of environmental resources[83].

The number of animals killed as the result of road accidents has been increasing. Research has revealed that road mortality can be a particularly serious threat to rare, endangered or vulnerable species that already have low

[81] C. Gortazar, et.al., "Diseases shared between wildlife and livestock".
[82] Mike M. Webster and Ashley J.W. Ward, "Personality and Social Context", *Biological Reviews* 86, No. 4 (2011), 759-773.
[83] C. Carbone, et.al. "Energetic constraints on the diet of terrestrial carnivores." *Nature 402* (1999): 286-288.

population levels, or those with poor life history traits that increases vulnerability to population decline and potential extinction[84]. For instance, in a study by Alexander and Waters in the Bow Valley of Banff National Park, high rates of road and rail mortality of wolves have resulted in a localized extinction of their population[85]. Species such as wolves, bears and elk, like the African wild dogs, have sizeable home ranges that require them to crossroads frequently. Moreover, road right-of-way, bridges, or feeder roads, and paths often attract vertebrate species because they provide good habitat for hunting, grazing, and movement, increasing the chance of vehicular-caused mortality[86].

5.0 Current Conservation and Management Efforts: Examples from the Serengeti Ecosystem

A number of wild dog population restoration and recovery projects have been established in some countries to address their decline. In Tanzania and Kenya (The Serengeti for instance, conservation agencies introduced dog recovery

[84] Forman and Alexander, "Roads and their major ecological effects."
[85] Alexander and Waters, Effects of Highway Transportation Corridors on Wildlife"; C. Callaghan, et.al. "Highway effects on gray wolves within the golden canyon, British Columbia." G. L. Evink, P. Garrett and D. Zeigler (eds.). *Proceedings of the Third International Conference on Wildlife Ecology and Transportation* (Florida: Department of Transportation, Tallahassee, 1999), 39-51.
[86] Forman and Alexander "Roads and their major ecological effects"; Alexander and Waters (2000).

ranches and public awareness campaigns to the local people on the endangered status of wild dogs and the need for conservation efforts. Wild dog restoration schemes in the Serengeti-Maasai Mara ecosystem and Kruger National Park nurtures African wild dogs until they have reproduced and multiplied, and then reintroduce them into their natural habitats. These efforts have produced positive results[87]. In South Africa, wild dog reintroduction attempts have tried to avoid areas inhabited by dense populations of lions. It is believed now that frequent kleptoparasitism by hyenas locating wild dog kills has declined due to the fact that these restorations are avoiding high trophic-level predators[88].

Importantly, recent initiatives by the member states from the Southern Africa Development Community (SADC), who founded the so called "Trans-Frontier Conservation Areas" (TFCAs) /Transboundary Protected Areas (TBPAs) to help in conservation of regions' natural resources, jointly stride towards sustainable natural heritage conservation. TFCAs are founded on the realization that natural resources that stand on international boundaries are shared heritage assets with the potential to contribute to conservation of biodiversity. SADC has not only embarked in economic

[87] See, for instance, R. Woodroffe, et.al. *The African wild dog: status survey and conservation action plan* (Switzerland: IUCN, 1997).
[88] Alexander and Appel, "African wild dogs endangered by a canine distemper epidemic".

development in the region but has become a functional and integrated network of trans-frontier conservation areas where shared natural resources are sustainably co-managed and conserved to foster economic and social development, tourism, and regional integration for the benefit of both those living within and around TFCAs, as well as for mankind at large. TFCAs is community-centred, regionally integrated, and sustainably managed network of world-class trans-frontier conservation areas with a mission to foster cooperation in regional biodiversity conservation and sustainable use of their biological resources.

6. Concluding Remarks

Despite being admired for their resilience, the population of African wild dogs is in deep decline and in danger of extinction in sub-Saharan Africa. Human habitat disturbance is the prime cause in the current worldwide trend of reduced biodiversity and the central reason for the decline in African wild dog populations. Their sensitivity to habitat fragmentation as a result of their natural behavior patterns put them in conflict with humans in a variety of ways. Because human encroachment is not likely to cease or be reversible, efforts to improve chances of African wild dog survival have to take human interaction into account. Conservation requires that responsible authorities and agencies demonstrate the political will to address

management challenges and improve benefits for the local communities through wildlife management revenues.

7.0 Way Forward and Future Directions

The drastic decline in African wild dog populations in recent years makes them one of the most threatened species in the world. The causes of African wild dogs' decline include their vulnerability to habitat fragmentation and resulting conflict with humans that include purposeful and accidental killings, road accidents and infectious disease. All these causes are associated with habitat encroachment by humans and are unlikely to be reversible, though efforts are being made to salvage their lives, new ways need to be developed that would take human interaction into account.

For conservation efforts to be successful then, further research on African wild dog patterns of activity and interactions with their present environment need to be completed. Since three of the largest remaining wild dog populations are found in Kruger National Park (South Africa), the Selous Game Reserve (Tanzania), and Northern Botswana, protecting about one-third of all the African wild dogs alive today, understanding the impact on the dog populations is particularly relevant to conservation efforts. Because human encroachment is a reality, some of the environmental impacts can be ameliorated with small changes to policy and practice in regions in or near African dog habitats. Snare related deaths, either accidental, as the

result of unselective hunting techniques, or purposeful, for the sake of poaching, are one of the most documented causes of African dog population decline[89]. Efforts to address these issues included reducing the number of hunters in these regions by training them in farming and fishing activities. Reducing casualties by road accidents requires increasing awareness and improving conditions with reduced driving speeds and signage on specific points on the roadway that may be of high risk of collisions. Vaccinating domestic dogs against rabies and improving sanitation in the human communities near the range of the wild dog populations may also decrease death rates caused by disease.[90]

Rescue and mitigation measures used with other wild dog populations may also be applicable to help African wild dog populations and African conservators could learn by drawing examples from these other locations[91]. For example, in North America, Forman and Alexander suggested methods to improve road avoidance in wildlife conservation areas. We would recommend that this be adopted for Africa too[92]. For

[89] Leigh, "Loss of Genetic Diversity".
[90] J. M. André, "African wild dogs in Mozambique. In Tools for the conservation of African wild dogs. Do we know enough? What more do we need to know?" Report of a workshop on research for conservation of the African wild dog, Kruger National Park, South Africa, 25th-29th October 2004.
[91] Forman and Alexander, "Roads and their major ecological effects."
[92] *Ibid.*

successful restoration and salvaging of African wild dogs, African conservators and policy makers should avoid human-wild dog ecological interference and introduce the restored dogs into other wild dog packs in habitats with low densities of higher trophic level predators. Roads should not cut across or through conservation areas because they will indirectly effect animal movement patterns and behaviours in areas adjacent to roads.

All these efforts may mitigate the decrease in African wild dog populations, but any conservation efforts in most of Africa face one major challenge: lack of political will that both results from and causes poverty, corruption, and ignorance. African leaders lack the readiness to conserve nature and wildlife ecology because these resources do not provide immediate benefits. Rather than conserving nature for its own sake, most government conservation authorities in sub-Saharan Africa are concerned with the wildlife conservation management of large animals such as lions, giraffes, elephants, cheetahs, rhinos, and buffalos that have revenue-generating value within the tourism industry. The purpose of conservation is seen as a way of improving economic gains rather than for reasons of nature conservation or world heritage. Since African wild dogs have a negligible economic impact, they are not included in most conservation management plans hindering their chances for survival.

Local communities in Africa generally view wildlife conservation as a non-profitable, less valuable, and insignificant endeavour that has nothing to do with their daily livelihoods. The wildlife management sector is perceived as a profitable project for upper class-citizens, business tycoons, and politicians rather than a way to preserve national treasures or world heritage. There is little to no involvement of local community leaders in conservation efforts, and the public participates very little because they are not regarded as the custodians or owners of these natural resources by the government organizations. Rather, conservation efforts are viewed by most people as a way for African politicians to enrich themselves and their families from the revenue emanating from tourism, illicit trade, and corruption from poaching activities. Probably, we researchers in paleoanthropology should step in and focus, direct, and conduct our studies to address these African problems

As a result, protection and conservation of endangered species is a very difficult task in Sub-Saharan Africa, since it requires a mutual commitment, collaboration and effort by all parties: researchers, policy makers, foreign donor agencies, stakeholders, and the public. Collaborative programs for wildlife and ecological protection are desperately needed to minimize adverse effects of environmental and ecological disturbance, fragmentation,

and instability. For example, community outreach campaigns combined with military assistance for patrols of conservation areas could be very effective to combat against illicit trading and poaching. These efforts would not only benefit wild dog populations, but also assist to maintain populations of other endangered, vulnerable, and threatened animals such as rhinos, elephants, and lions, that are likely to face extinction if more deliberate efforts to protect them are not instituted.