



The Dynamics of the Wood Based Commodity Trade on the Freetown Peninsula, Sierra Leone

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This report is a part a broader research project examining wood trade dynamics across northern and western Sierra Leone, which is being co-financed by the Promoting Agriculture, Governance and Environment (PAGE) programme in Sierra Leone (funded by ACDI/VOCA and USAID), and the Forest Law Enforcement, Governance and Trade (FLEGT) programme funded by the European Union and administered by the United National’s Food and Agricultural Organisation (FAO).

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This report provides an analysis of research conducted in the urban centre of Freetown during November 2011.

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1. Introduction

1.1 Overview

The wood-based product trade is a prominent feature on the Freetown Peninsula. Vendors selling boards and poles are found in all areas of the city, while large trucks arrive regularly into Waterloo to unload firewood and charcoal from the provinces. Although this highly visible trade is commonly linked to local and international discourses about deforestation in Sierra Leone, it is little understood due to a general absence of empirical data on the topic. Over the past decade in particular, therefore, policy-makers and project implementers attempting to ‘address issues’ related to the trade have not had access to timely and accurate information to guide their efforts. This report seeks to contribute to addressing this gap, providing a critical examination of the timber (boards and poles) and fuelwood (firewood and charcoal) markets in the urban centre of Freetown, Sierra Leone. While analysis of environmental effects in (mainly provincial) production areas will be presented in a broader report in early 2012, the present document concentrates specifically on the nature and dynamics of the trade in Freetown, by far the country’s largest market for forest products. Key areas of focus here include: tree species used, changes in prices, seasonal fluctuations, governance issues and conflicts, local chains of custody, actors involved in the trade, the geography of the trade in the greater Freetown area and its contribution to livelihood production.

As noted, the discussions provided in the following sections of this report are designed specifically for the benefit of policy makers and project implementers seeking to improve the social, economic and environmental characteristics of the trade in these important commodities. Following a brief outline of the terminology employed and the methodology of the research, section two provides a background of the Freetown Peninsula study area including brief examinations of its history and geography. Next, section three provides a review of the existing literature reporting on prior research into timber and fuelwood trade in the Freetown area. This is followed by four sections dedicated to each of the four main commodities: boards, poles, firewood and charcoal, respectively. Each of these sections will provide a brief history of Freetown’s trade in the commodity as well as a detailed description and critical analysis of the contemporary situation. Finally, section eight presents some concluding remarks, observations and some preliminary recommendations.

The project has been financed by the ACDI/VOCA and USAID funded programme: Promoting Agriculture Governance and the Environment (PAGE) and the European Union funded and FAO administered Forest Law, Enforcement, Governance and Trade (FLEGT) support programme. All views presented in this report, however, are those of its authors.

1.2 Terminology

The classification relating to these commodities is highly varied in both formal literature and informal discussions; therefore it is important to define them early in this report. For this report ‘wood-based products’ is an umbrella term which refers to all of the commodities discussed here: boards, poles, charcoal and firewood. The term ‘timber products’ refers to boards and poles which, among other uses, are predominantly used in construction and furniture making. The term ‘fuelwood’ refers to both firewood and charcoal which are mainly used for cooking and food preparation. Such general and clear classifications allow for greater ease in discussing the trade.

1.3 Methodology

As noted above, this report on the Freetown Peninsula is part of a much larger research project which examines the forest timber trade across the country. This has included a rapid assessment involving detailed interviews with all available urban vendors in the Southern and Eastern Provinces, followed by in-depth research in the Northern Province and the Western Area. The more detailed work in the north

and west involved both individual interviews with all urban vendors in district headquarter towns¹ as well as extensive group interviews with producers in source villages across the Northern Province. A national level assessment is important, as will be evident in this report, as the trade in forest timber commodities for the greater Freetown area is strongly linked to source points as far as the distant edges of the Sierra Leonean provinces. Again, while a final report presenting all of the research will be released in early 2012, this report provides a focused analysis characterizing the trade on the Freetown Peninsula, by far the country's most important consumer market for all four of the above-mentioned commodities.

Following the model of the provincial research, the project took a comprehensive approach to collecting data, with the objective of locating and interviewing a substantial proportion of wood based product vendors and transporters in Freetown. A team of four researchers worked together to collect the data, starting in Waterloo and then moving in a counter-clockwise direction around the Peninsula up to Ogoo Farm. In total, 167 vendors were interviewed, which equated a large sample of the major vendors involved in trading these wood-based products. A mixture of semi-structured and focus group interviews were conducted depending on the situations encountered in the field.² The interviews were structured with a common list of questions to ensure completeness and comparability of the data, however open opportunities were given to all participants to discuss any specific topic areas of particular interest to them or the research team. This was an important element for the research, as it was as much about giving those in the trade a voice in policy and project circles as it was about collecting specified data. Data collection was completed over the course of November 2011, and was analysed in complement with archival and contemporary literature on the topic.

2. Freetown Background

Modern Sierra Leone owes its roots to a settlement of freed slaves from London and the Americas, which was first established in 1787. In 1808 the British annexed the Freetown Peninsula as a crown colony, and subsequently used it as a base to fight the slave trade, liberating enslaved Africans from passing slave slips, many of whom subsequently settled on the Peninsula.³ The liberated slaves gradually integrated with the original black settler population creating a collective culture known as the Creole (later Krio), and towards the end of the nineteenth century an English influenced Krio language had developed as the main medium of communication.⁴ During this time, Sierra Leone also became perhaps the first colony in West Africa to experience widespread timber exploitation by Europeans. Between 1816 and the 1880s, timber barons (many of whom were ex-slave traders), established themselves in Sierra Leonean hinterland, exporting timber to European docklands for the construction of naval ships.⁵ This trade ultimately came to an end before the end of the 19th century, due to the advent of iron ships, competition from the thriving kernel trade and potentially from the exhaustion of profitable timber reserves.⁷

¹ Other towns such as Yele and Kamakwie, for example, were also inspected but were found to be predominantly source areas for the larger urban centres rather than marketing centres themselves.

² In some cases, such as with mangrove firewood vendors near the quay, a large number of small vendors were encountered. Since preliminary inquiries indicated that these vendors conducted almost identical operations, often cooperatively, group interviews were conducted for the sake of efficiency. In most cases, however, (e.g. charcoal depots and lumber stores) individual interviews were conducted.

³ S J Braidwood, *Black Poor and White Philanthropists: London's Blacks and the Foundation of the Sierra Leone Settlement 1786-1791*, (Liverpool: Liverpool University Press, 1994); J Peterson, *Province of Freedom: A History of Sierra Leone 1887-1870*, (London: Faber and Faber, 1969)

⁴ J J Crooks *History of the Colony of Sierra Leone, West Africa*, (Dublin: Browne and Nolan, Limited, 1903); C Fyfe, "Foundation of Freetown" in C. Fyfe and E. Jones (eds.) *Freetown: A Symposium*, (Freetown: Sierra Leone University Press, 1968): 1-8; A J G Wyse, *The Krio of Sierra Leone: An Interpretive History*, (London: C. Hurst and Company, 1989).

⁵ F A Akiwumi, "Conflict Timber, Conflict Diamonds: Parallels in the Political Ecology of 19th and 20th Century Resource Exploitation in Sierra Leone" in Kwadwo Konadu-Agyemang (ed) *Africa's Development in the Twenty-first Century: Pertinent Socio-Economic and Development Issues*, (Ashgate, 2006): 109-125.

⁶ F A Akiwumi, *Environmental and Social Change in Southwestern Sierra Leone: Timber Extraction (1832-1898) and Rutile Mining (1967-2005)*, PhD Dissertation, (San Marcos: Texas State University, 2006).

⁷ D C Dorward and A I Payne 'Deforestation, the Decline of the Horse, and the Spread of the Tsetse Fly and Trypanosomiasis (nagana) in Nineteenth Century Sierra Leone' *The Journal of African History* 16:2 (1975): 239-256; F A Akiwumi, *Environmental and Social Change in Southwestern Sierra Leone: Timber Extraction (1832-1898) and Rutile Mining (1967-2005)*, PhD Dissertation, (San Marcos: Texas State University, 2006).

In 1896, as a part of the broader scramble for Africa, the British incorporated the Sierra Leone protectorate, expanding Sierra Leone's boundaries into the hinterland along what are now the modern day boundaries of Sierra Leone. As the colonial adventure was intended to be profitable (or at least self-supporting), central control was also required to generate and protect state revenues.⁸ As a result, the formalisation and institutionalisation of natural resource exploitation for export was a key objective of the Sierra Leone protectorate. Thus, unsurprisingly, in 1912 a forestry department was established, which was primarily oriented toward European-style commercial timber harvesting.⁹ However, early colonial foresters in Sierra Leone were disappointed with the limited extent of the (economic exploitable) tropical moist forests in the country, particularly in comparison to other British West African colonies such as the Gold Coast (modern day Ghana) and Nigeria. Thus one of the earliest actions of the Forestry Department was the establishment of a colony forest reserve on the Freetown Peninsula's forest mountains in 1916 (now known as the Western Area Peninsula Forest Reserve (WAPFoR)). The exploitation of the country's forest was subsequently a slow process, and proper attempts at timber harvesting by the forestry department did not start until the 1930s, and even then very much in a limited manner. World War Two is a key inflexion point in the trade in all wood-based products, as exploitation and production increased across all of the commodities to fulfil domestic and war-time needs (discussed below in each commodity).

Post-independence, Sierra Leone came to suffer from a long period of corrupt authoritarian rule. Opposition to the central government was gradually eliminated, culminating in the declaration of Sierra Leone as a one-party state in 1978.¹⁰ Governance was administered through a system of acute patrimonialism, whereby key influential individuals were appeased with strategic favours and payments.¹¹ A shadow state emerged, revolving predominantly around Sierra Leone's rich mineral resources, with only a small elite minority ever substantially profiting.¹² The central government focused its power and activities in Freetown, largely neglecting the rest of the country¹³ leading to an increase in rural-to-urban migration that was not met with any strategic planning policies.¹⁴ Combined with an economic downturn, this increasingly impacted on Freetown, causing the city's expansion to be haphazard, with many seeking residence in the sanctuary of the forested peninsula mountains which offered resources for livelihood-making.¹⁵

With the outbreak of a civil war in 1991, however, the rapid change in Freetown's structure and population soon became even more dramatic.¹⁶ Until 1997, Freetown had been relatively insulated from the excesses of the conflict and was generally seen as a safe haven, subsequently receiving vast numbers of displaced people; with some authors estimating that Freetown's population tripled during the war

⁸ D. Meredith, "State Controlled Marketing and Economic "Development": The Case of West African Produce during the Second World War," *The Economic History Review* 39:1 (1986): 77-91.

⁹ P G Munro and G Hiemstra-van der Horest, 'Conserving exploitation? A Political Ecology for Forestry Policy in Sierra Leone' *Australasian Review of African Studies* 32:1 (2011): 59-78.

¹⁰ A Abraham, "Local Government and the provision of Social Services in Sierra Leone" in C. M. Fyle (ed.) *The State and the Provision of Social Services in Sierra Leone since Independence, 1961-1991*, (Oxford: CODESRIA, 1993).

¹¹ M Boás, 'Liberia and Sierra Leone – dead ringers? The logic of neopatrimonial rule,' *Third World Quarterly*, 22:5 (2001): 697-723; P Richards, *Fighting for the Rain Forest: War Youth and Resources in Sierra Leone*, (Oxford: James Currey, 1996)

¹² W Reno, *Corruption and State Politics in Sierra Leone*, (Cambridge: Cambridge University Press, 1995); S J Kpundeh, *Politics and Corruption in Africa: A Case study of Sierra Leone*, (Lanham: United Press of America, 1995).

¹³ J B Riddell, 'Beyond the Geography of Modernization: The State as a Redistributive Mechanism in Independent Sierra Leone' *Canadian Journal of African Studies / Revue Canadienne des Études Africaines* 19:3 (1985): 529-545; J B Riddell, 'Sierra Leone: Urban-elite bias, atrocity & debt', *Review of African Political Economy* 32 (2005): 115 – 133; J B Riddell, "Urban Bias, Redistribution, and State Collapse: The Lessons of Sierra Leone" in *West African Worlds: Paths through Socio-Economic Change, Livelihoods and Development*, (Harlow: Pearson Education Limited, 2005): 109-128.

¹⁴ J Doherty, 'Housing and development in Freetown, Sierra Leone', *Cities*, (1985): 169-164

¹⁵ M Harvey and J Dewdney, "Planning Problems in Freetown" in C. Fyfe and E. Jones (eds.), *Freetown: A Symposium*, (Freetown: Sierra Leone University Press, 1968): 179-182; A C Millington, 'Soil management under urban-fringe farming systems in Freetown, Sierra Leone', *Soil Use and Management*, 1:4 (1985): 110-112

¹⁶ W L Farmer, *Interface Between the Biophysical Environment in Informal Settlements and Poverty in Developing Countries: The Case for Sierra Leone*, PhD Thesis, (Leicester: De Montfort University, 2004)

period.¹⁷ Later, however, the rebels, presenting themselves as bush revolutionaries fighting against the elite of Freetown, threatened to use the Peninsula forests as a base from which to attack the city.¹⁸ Rebel incursions into Freetown did eventually occur; first by invitation of a government installed by a *coup d'état* in 1997 and later via a direct attack in 1999, which were marked with widespread looting and the destruction of numerous buildings. These incursions displaced a significant proportion of Freetown's urban population, with many relocating to the forested urban fringe in a quest for safety.¹⁹

The civil war ultimately caused a dramatic change in the trade in wood-based products in Freetown and wider Sierra Leone. In the post-civil war era there was a massive demand for poles and boards in Freetown for rebuilding and nearby refugee camps (which were not decommissioned until 2007). The war also caused a spread of charcoal production around the country, where displaced peoples in Sierra Leone and Liberia shared and learnt techniques about charcoal, causing a dramatic rise in the commodity in the post-war era. Firewood and charcoal trading in particular became a vital livelihood for many who had their lives displaced and their farms destroyed during the civil war. While Freetown has continued to rapidly grow as an urban centre, providing with construction projects and additional customers feeding into the wood-product trade.

3. Previous Research

Existing research on the dynamics of timber (boards and poles) and fuelwood (firewood and charcoal) trade in Freetown have generally been very limited in terms of publication date, geographic scope and commodity. The majority of this research was conducted during the 1980s, mainly in Freetown and the Peninsula villages and predominantly focused on firewood (and, to a lesser extent, charcoal). The period and focus of these studies is perhaps unsurprising as they occurred in the aftermath of the perceived 'fuelwood crisis' of the mid-1970s, where a gap between the seemingly dwindling biomass stocks and the increasing energy needs of a growing population were seen as a recipe for a Malthusian style disaster.²⁰ This expected 'disaster' never materialised, and the notion that fuelwood harvesting causes mass deforestation has been thoroughly discredited by numerous subsequent studies.²¹

Nevertheless, throughout the 1980s (and later) Freetown energy studies mostly seemed to be grounded in the notion of a fuelwood crisis. The first paragraph in a report titled *Energy Use Patterns: Sierra Leone* by Ogunlade Davidson in 1985 clearly exemplifies this approach:

Sierra Leone, like most non-oil producing developing countries, is experiencing serious energy problems caused by the rate of consumption of fuelwood (firewood and charcoal) and the price of imported crude oil. The depletion of forest reserves is now a cause for anxiety since the present rate of consumption of fuelwood far exceeds the rate of replenishment of this natural resource, and all indications point to increasing exploitation of this fuel source in terms of the numbers of users and the rate of consumption. This poses a serious challenge for proper forest management

¹⁷ See I Abdullah, "Space Culture and Agency in Contemporary Freetown: The Making and Remaking of a Postcolonial City" in O. Enwezor, C. Basualdo, U M. Bauer, S. Ghez, S. Maharaj, M. Nash and O. Zaya (eds.) *Under Siege: Four African Cities Freetown, Johannesburg, Kinshasa, Lagos*, (Germany: Hatje Cantz Publishers, 2002): 201-212; K Boadi, Kuitunen, M., Raheem, K. and Hanninen, K. Urbanisation without Development: Environmental and Health Implications In African Cities' *Environment, Development And Sustainability* 7 (2005): 465-500

¹⁸ Revolutionary United Front of Sierra Leone, *Footpaths to Democracy: Towards a New Sierra Leone*, (RUF/SL, 1995); P Richards, *Fighting for the Rain Forest: War Youth and Resources in Sierra Leone*, (Oxford: James Currey, 1996).

¹⁹ Government of Sierra Leone (GoSL), *The National Action Programme to Combat Desertification/Land Degradation (UNCCD) of Sierra Leone* (GoSL: Freetown, 2007).

²⁰ Jess Ribot 'A History of Fear: Imagining Deforestation in the West African Dryland Forests' *Global Ecology and Biogeography* 8:3-4 (1999): 291-300.

²¹ G Leach and R Mearns, *Beyond the Woodfuel Crisis: People, Land and Trees in Africa*. (Earthscan, London, 1988); R A Cline-Cole, H A C Main, J E Nichol, 'On fuelwood consumption, population dynamics and deforestation in Africa.' *World Development* 18:4(1990):513-27; G Hiemstra-van der Horst and A J Hovorka, 'Reassessing the "energy ladder": Household energy use in Maun, Botswana' *Energy Policy* 36 (2008): 3333-3344; G Hiemstra-van der Horst and A J Hovorka, 'Fuelwood: The "other" renewable energy source for Africa?' *Biomass and Bioenergy* 33 (2009): 1605-1616. J E M Arnold, G Kohlin, R Persson, 'Woodfuels, livelihoods and policy interventions: changing perspectives' *World Development* 34:3 (2006): 596-611.

and conservation strategies which will ensure adequate supplies of fuelwood while at the same time ensuring a brake on the indiscriminate use of this fuel source.²²

Despite the alarmist nature of the above statement, the comprehensive research behind the report makes no attempt to provide empirical evidence to support the claim. Its focus instead is more on the efficiencies surrounding the combustibility of different fuel types. The report's overall apprehension about fuelwood harvesting relies largely on an earlier study from 1979, which provided the statistics that forest cover for Sierra Leone was less than 9%, and that more than 90% of trees that were felled were cut for fuelwood.²³ This statement, however, is problematic for two reasons. First it assumes that fuelwood comes from the forest, whereas current and previous research shows that it is predominantly a by-product of the farming cycle.²⁴ And second, its claim of less than 9% forest cover in Sierra Leone is spurious. The calculation of Sierra Leone's forest cover, both historical and contemporary, has been notoriously flawed. Nevertheless the rate of forest cover in 1985, at the time of Davidson's report, was almost certainly much higher than 9%; the FAO, for example, currently estimates the country's forest cover to be around 38%.²⁵

Studies around the same by James Kamara demonstrate similar apprehensions about fuelwood, although his concerns are based more on broad economic models which lead him to assume that fuelwood consumption is problematic simply because it is unregulated and sourced from 'common property' areas:

The exploitation of the forest resources is therefore confined to the gathering of firewood and to some extent sawing of timber. This exploitation poses a threat to continued supplies because of the inefficient and unordered manner it is undertaken and due to the absence of national jurisdiction as to the methods of collection and apparent lack of prescribed and satisfactory exclusive ownership rights or the relaxation of restraints to the extension and appropriation of rights and ownership (thus rendering these resources as open or common property).²⁶

Similar to Davidson, however, Kamara makes no attempt to empirically observe the impacts of fuelwood collection on the forest. The basis of his argument rests on a simplistic 'tragedy of the commons' notion, which has been shown to be overly simplistic by more recent economic studies.²⁷ As has been seen in this research, often local and informal institutions arise in the regulation of wood product trade in communal areas. In a 1984 article Kamara does mention that much of the firewood in Freetown does come from farms and roadsides.²⁸ However he does not appreciate or analyse what the relevance of this might be for his overall analysis. Instead he just relies on a broad modelling analyses and questionnaire surveys.

More recent studies on fuelwood in Freetown have been conducted by Andrew Inglis, first while he was working as a Voluntary Service Overseas (VSO) volunteer in Sussex Village in the late 1980s, and then later as a part of his Master's research.²⁹ His research in Sussex examined conflicts between the fuelwood harvesters of Sussex village and board producers coming in from Freetown. He admits the methodological limits of his research in that he is unable to provide specific information about the rate in which the forest is being cleared. Nevertheless, he forewarned that if something were not done to address the situation the urban timber harvesters would cut right up into the forest reserve.³⁰ Inglis' prediction, however, has not yet come true (possibly due to advent of the civil war and the subsequent deterioration

²² Ogunlade R Davidson *Energy Use Patterns, Sierra Leone*, Manuscript Report, (International Development Research Centre (IDRC): 1985): 1.

²³ Atlanta Industrie und Unternehmensberatung *Feasibility study on forest resources development, Sierra Leone*, (Hamburg: Germany 1979).

²⁴ For example see P C Goswami and M Hoskins, *Assistant to Local Community Forestry*, Report to the Government of Sierra Leone, (Rome: FAO, 1980); R A Cline-Cole 'The Socio-Ecology of Firewood and Charcoal on the Freetown Peninsula *Africa* 57:4(1987): 457-497.

²⁵ Food and Agricultural Organisation *State of the World's Forest 2011* (FAO: Rome 2011).

²⁶ James Kamara, *Firewood Energy in Sierra Leone – Production, Marketing, and Household Use Patterns*, (Verlag Weltarchiv: Hamburg, 1986): 6

²⁷ See E Ostrom, *Governing the Commons: The Evolution of Institutions for Collective Action* (Cambridge University Press, 1990); E Ostrom, R Gardner and J Walker (ed), *Rules, Games, and Common Pool Resources*, (Ann Arbor, University of Michigan Press, 1994)

²⁸ James Kamara "Firewood energy resource use in Sierra Leone" in Peter K. Mitchell and Adam Jones (eds) *Sierra Leone Studies at Birmingham, 1983* Proceedings of the Third Birmingham Sierra Leone Studies Symposium, (Fircroft College, Birmingham 1984): 132-145

²⁹ A Inglis, *Fuelwood Use in Freetown, Sierra Leone*, (MSc Thesis: University of Edinburgh, 1990)

³⁰ A Inglis, *Rural Women and Urban Men: Fuelwood Conflicts and Forest Sustainability in Sussex Village, Sierra Leone*, Network Paper 6c, (ODI Social Forestry Network, 1988).

of the Peninsula road). A recent land cover change analysis of the Peninsula conducted by Welthungerhilfe (WHH) showed the forest to be still intact on the forest reserve edge near Sussex.³¹

The most recent research on fuelwood in Freetown was conducted by the local environmental Non-Governmental Organisation (NGO), Green Scenery in 2000. The research involved 420 household questionnaire surveys across a suburb in Freetown. Similar to Davidson's and Kamara's previous work it is grounded in the assumption that fuelwood consumption must inevitably destroy the country's forests. The report notes that 65% of respondents consumed fuelwood, and subsequently assumes that there must therefore be "monumental pressure exerted on the natural forests."³² No attempt is made in the research to properly understand where this fuelwood is originally being sourced from. Perhaps the most interesting information from this research was that out of the 420 households, only one actually went into the forest to collect its firewood needs, the rest purchased their energy needs from hawkers and vendors, demonstrating the highly commercialised nature of the trade in Freetown at the time.

While the above articles and reports are either methodologically limited or flawed, this has not prevented them from having a substantial impact on policies and projects. They propagate a perspective that deforestation issues in Sierra Leone are a symptom of poverty, as it is poorer households that generally harvest and sell fuelwood.³³ For the most part, projects to address the perceived problem have involved tree planting and the establishment of firewood plantation plots, which have been funded by the FAO, UNDP and the World Bank.³⁴ These tree planting projects generally have not taken into account which areas most of the commodities were being sourced from or the specific preferences for different trees species, meaning they likely are having a very limited impact on the overall trade. Ogunlade Davidson, the author of one the reports above, was to become Sierra Leone's Minister for Energy and Water Resources in 2010, a post that he held until early 2012.³⁵ Prior to this post, he was the Dean of Engineering at Fourah Bay College, and a public proponent of promoting liquid petroleum gas (LPG) as an alternative to fuelwood for rural energy consumption.³⁶ Thus unsurprisingly, during Davidson's tenure at the Ministry of Energy and Water Resources (MEWR), the replacing of fuelwood with LPG became an official objective of the Sierra Leone's energy policy.³⁷ However, the viability of this policy has not been based on any empirical evidence or modelling, rather is based on the notion that something *needs* to be done about fuelwood consumption. In perhaps the most dramatic move, in 2008 the government sent the army into WAPFoR to arrest charcoal makers, timber harvesters and other forest users. The utility of such approaches has been seriously called into question by a recent land cover change assessment, which showed that the majority of forest loss on the peninsula in the past decade has been caused by urban encroachment in the Leicester Peak area.³⁸ This suggests that deforestation on the Peninsula has been more a function of corrupt land sale practices, rather than small-scale timber and fuelwood harvesting.³⁹

By far the best research conducted on fuelwood on the Freetown Peninsula has been produced by Reginald Cline-Cole, as a part of his PhD, and then later through a number of publications in the 1980s and early 1990s. Rather than taking a broad spectrum approach to firewood and charcoal use and production in Freetown, his research focuses on the complexities and nuances of the commodities and

³¹ M Schultz, *Land- and forest-cover change analysis, Western Area Peninsula Forest Reserve (WAPFR), Sierra Leone, 2nd Report of Activities* (OBf 2011).

³² Joseph Randall *Fuel wood and Wood Fuel consumption assessment in Freetown: A Case Study for Kissy New Site*, (Green Scenery: Freetown 2000): 10.

³³ P Munro 'Deforestation: constructing problems and solutions on Sierra Leone's Freetown Peninsula' *Journal of Political Ecology* 16 (2009): 104-122.

³⁴ R V Potter, L Danso and P D Palmer *Community Participatory Forestry for Fuelwood Production in Western Area, Sierra Leone. Report of an evaluation mission*, (FAO: Rome, 1990); FAO, *Alleviation of the Fuelwood Supply Shortage in the Western Area, Sierra Leone. Project findings and recommendations* (FAO: Rome, 1991).

³⁵ Davidson was unexpectedly sacked from his post in 2012 by the President. The reasons for his sacking are somewhat ambiguous; see W Ojukutu-Macauley, 'Prof Ogunlade Davidson sacked' *Avoko*, 25 January 2012

³⁶ See Sheila Kulubya, 'Efforts underway to address energy consumption in Sierra Leone' *Commonwealth Quarterly* 2:1 (2008).

³⁷ For example see: Ministry of Energy and Water Resources, *Sierra Leone National Energy Policy*, (Government of Sierra Leone 2009).

³⁸ M Schultz, *Land- and forest-cover change analysis, Western Area Peninsula Forest Reserve (WAPFR), Sierra Leone, 2nd Report of Activities* (OBf 2011).

³⁹ P Munro 'Deforestation: constructing problems and solutions on Sierra Leone's Freetown Peninsula' *Journal of Political Ecology* 16 (2009): 104-122

their trade. While some of the data in his work is now no longer current, the insights from his analysis have been invaluable for this research and report, and have been drawn upon throughout the following sections, particularly in relation to firewood. His works have included examination of complex dimensions of different physical properties of type of firewood and how they relate to consumer selection,⁴⁰ the nuances of energy use across different socio-economic groups in Freetown,⁴¹ and the impact of the World War Two on Sierra Leone's and Freetown's fuelwood policies.⁴² However, his most relevant work for this research is his 1987 article on the 'The Socio-Ecology of Firewood and Charcoal on the Freetown Peninsula'.⁴³

In this article, Cline-Cole, notes how government policy on fuelwood has tended to be reactive, *ad hoc* and based on unreliable information, meaning that many of its intervention are likely to be counterproductive. Through his research he illustrates the complexity of charcoal and firewood trade in Freetown, in the dimensions of species types, consumer preferences, price changes, socio-economic vulnerabilities and trade flows. He notes that the ecological impacts of fuelwood collection were poorly understood, and that most literature is usually based on simple 'chain ecology reaction' which promoted a 'fuelwood crisis' perspective that failed to appreciate the most fundamental principles of modern ecological science: that ecological process are highly dynamic and location and time specific. Cline-Cole ultimately concluded that fuelwood policy had to be flexible and heterogeneous in order for it to have any success, and that more studies about fuelwood were needed to help inform any of these policies.

In contrast to fuelwood, there have been no properly developed studies on the trade of boards and poles in the Freetown market. In the 1950s most research about boards revolved around the development and progress of the Forest Industries Corporation (FIC) in Kenema.⁴⁴ While in the 1960s and 1970s articles also focused on board and timber production in the Kenema district and the Gola Forest, these were predominantly government propaganda pieces, rather than critical research articles.⁴⁵ As a result, little has been known about how boards are traded in the Freetown area markets. Moreover, still less has been written about poles, with just one FAO report in 1980 noting that a study of the main markets and supply flows of poles (along with fuelwood) was needed in Freetown and Sierra Leone.⁴⁶ Evidently there are massive gaps in our understanding of the trade in timber forest products in Freetown, yet this has not prevented the implementation of a range of policies and projects to address the *perceived* (rather than empirically verified) issues. This report thus provides the first empirically based research into both commercial timber and fuelwood products, and is also one of the only investigations into the trade in any of the commodities in the past couple of decades.

4. Boards

4.1 Historical Trade

As noted earlier, during the 19th century the exporting of timber from Sierra Leone to the United Kingdom was fairly widespread. However, by the 1880s timber exportation had completely ceased and all lumber from sawmills was cut into boards to be sold locally in Freetown.⁴⁷ Subsequently by the beginning

⁴⁰ R A Cline-Cole, 'Towards an Understanding of Man-Firewood Relations in Freetown (Sierra Leone)' *Geoforum* 15:4 (1984): 583-594.

⁴¹ R A Cline-Cole (1989) 'Inequality and Domestic Energy in Kano, Nigeria and Freetown, Sierra Leone' K. Swindell, J.M. Baba and M.J. Mortimore (eds) *Inequality and development : Case Studies from the third world*, (London: Macmillan, 1989): 243-268.

⁴² R A Cline-Cole 'Wartime Forest Energy Policy and Practice in British West Africa: Social and Economic Impact on the Labouring Classes 1939-45' *Africa* 63:1(1993): 56-79

⁴³ R A Cline-Cole 'The Socio-Ecology of Firewood and Charcoal on the Freetown Peninsula' *Africa* 57:4(1987): 457-497.

⁴⁴ For example see: R S Pelly, 'Forest Industries – Sierra Leone' *Empire Forestry Review* 29:4 (1950): 351-360.; R S Pelly 'Shingles in Sierra Leone' *Farm and Forest* 8:1 (1947): 18-19

⁴⁵ *Sierra Leone Trade Journal* "exhibition of Furniture by the forest industries department" 3:2 (1963): 43; *Sierra Leone Trade Journal* "Sierra Leone Forest Industries Corporation" 8:2 (1968) : 38-41

⁴⁶ P C Goswami and M Hoskins, *Assistant to Local Community Forestry*, Report to the Government of Sierra Leone, (Rome: FAO, 1980).

⁴⁷ C Fyfe, *A History of Sierra Leone*, (Oxford: Oxford University Press, 1962).

of the 20th century, Sierra Leone had become a major importer of timber, with only some small-scale timber operations along the Peninsula at Bureh Town, John Obey, Mama Beach and York.⁴⁸ In a 1909 report there was a recommendation to build a sawmill on the peninsula. However this proposition was not to be realised until after the outbreak of World War Two, when a Military Forestry Company was brought into Sierra Leone to build and operate a pitsaw mill at River No. 2.⁴⁹ The sawmill operated between 1943 and 1945,⁵⁰ and focused on harvesting mainly hendui (*Lophira alata*). Another sawmill was also installed at Farren Point in Freetown, just after the end of the war in 1946, to act as a resawing mill for timber brought in from Kenema by rail.⁵¹ However, by 1948 it was also closed down and dismantled,⁵² although the site still operated as a handling depot for timber in Freetown for a number of years later.⁵³

While the sawmill at River No. 2 was removed, some small-scale pitsaw operations still continued in the area for the next few years. A 2.6 hectare No.2 River Forest reserve was constituted in December 1947,⁵⁴ regeneration activities were conducted and enumeration surveys were carried out.⁵⁵ In 1948, yemane (*Gmelina arborea*) was planted, a new rest-house was erected and the forestry department employed some local pitsawyer contractors to harvest the area.⁵⁶ Some logging activity was still occurring at River No. 2 as late as 1957.⁵⁷ However, eventually all formal timber operations on the Peninsula ceased, as the forest reserve transformed into a *protection*, rather than *production* forest reserve, and by the 1970s the old timber paths at River No. 2 were being used for tourist walks.⁵⁸

After the ceasing of operations at River No. 2 all timber operations in Sierra Leone were located in the Eastern Province, by the government owned Forest Industries Corporation (FIC) or private operators. All timber harvest was for domestic use. Little is recorded about these productions and the market in Freetown, and by the early 1990s all of the operations had been shut down. In 2007, the timber trade came back into prominence in Sierra Leone, this time as an export commodity, when a number of Chinese timber merchants crossed over the border from Guinea after a timber export ban was initiated there and started paying communities for their harvested timber. Initial operations opportunistically harvested timber, which was smuggled through Guinean ports. However, within months there was an expansion of the logging deep into northern districts and commencement of shipping operations through Freetown. This sparked a national crisis. In response to the logging, the government imposed a ban on all timber exports in August 2007 in order to regain control over the forestry sector. The ban was lifted in 2008, with dramatically heavier fees introduced for some aspects of logging operations and related equipment.⁵⁹ However in January 2010 the Sierra Leonean Government imposed a second timber export ban, which is still in place. The reasons for this second ban, according to the Forestry Division, is for the desire to have harvesting operations to focus on board production and hence to increase market supply for domestic consumption. The plan is to lift the ban within the next two to three years, when domestic market saturation has been reached. Although it could potentially occur earlier as the Forestry Division is currently developing a verification scheme for logging operations that would naturally feed into the

⁴⁸ C E Lane-Poole, *Report on Forests of Sierra Leone*, (Waterlow and Sons: London, 1911); M T Dawe, *Report on a Journey through the colony of Sierra Leone by the commissioner of Lands and Forests*, Sessional Paper No. 4 of 1923, (Govt Printer: Freetown, 1923).

⁴⁹ W D Macgregor, *Forestry Report for the Year 1943*, (Government Printer: Freetown, 1944).

⁵⁰ Minutes of a Meeting Held In The Colonial Secretary's Office On The 6TH MAY, 1943 – Nation Archives UK: CO 267/679/3 – Forestry Department – Exploitation of Forest Areas.

⁵¹ W D Macgregor, *Report on the Forest Administration of Sierra Leone for the Year, 1946*, (Government Printer: Freetown, 1947)

⁵² D Hodgson, *Annual Report on the Forest Administration of Sierra Leone for the Year 1948* (Government Printer: Freetown, 1949).

⁵³ A Nicol, *Annual Report on the Forest Administration of Sierra Leone for the Year 1954*, (Government Printer: Freetown, 1955)

⁵⁴ W D Macgregor, *Report on the Forest Administration of Sierra Leone for the Year 1946* (Government Printer: Freetown, 1947).

⁵⁵ D Hodgson, *Annual Report on the Forest Administration of Sierra Leone for the Year 1947* (Government Printer: Freetown, 1948).

⁵⁶ D Hodgson, *Annual Report on the Forest Administration of Sierra Leone for the Year 1948* (Government Printer: Freetown, 1949); D Hodgson, *Annual Report on the Forest Administration of Sierra Leone for the Year 1949* (Government Printer: Freetown, 1950).

⁵⁷ A F A Lamb, *1957 Report on the Forest Administration of Sierra Leone*, (Government Printer: Freetown, 1958)

⁵⁸ J Phillipson, *Wildlife Conservation and Management in Sierra Leone*, Prepared at the request of the Ministry of Agriculture and Natural resources, The British Council, 1978).

⁵⁹ G. Hiemstra-van der Horst 'We are Scared to Say No': Facing Foreign Timber Companies in Sierra Leone's Community Woodlands', *Journal of Development Studies* 47:4 (2011): 574-594.

export sector. This is being funded as a part of the European Union's Forest Law Enforcement, Governance and Trade (FLEGT) support programme.

4.2 Contemporary Context

For this research, a total of 53 board vendors on the Freetown Peninsula were interviewed. Fifty-one of these vendors exclusively sold boards, while two of them sold poles as well. All of these board vendors were either the sole owners of their businesses or were in partnership with their relatives. These vendors generally operated from one vending point on the Peninsula, with a very small minority operating two or three vending points, meaning that the industry is characterised as a great multiplicity of vendors, operating at a small-scale. The vending is predominantly conducted by men, although some women are involved, usually in partnership with their husbands. The age of the vendors was highly diverse, ranging from 20 to 70 years, while their time in the business ranged from a couple of years to over 40. The vendors operated as both retailers and wholesalers. Their customers generally include large construction companies, local builders and carpenters. Many of the vendors also operated adjacent carpentry workshops. The majority of vendors do not own storage facilities and have to pay rent for places to store their products overnight, as well as rent for the sites along the side of roads where they sell their boards.

The board vending industry on the Freetown Peninsula has grown rapidly over the past decade, driven by the post-war reconstruction and increasing urbanisation of the country. Along with this increase in demand has been an increase in competition. A handful of vendors were previously involved in exporting their boards (to Mali, Libya and China) a few years earlier, though this trade had since ceased due to the government's ban of timber exports. There are still, however, a handful of timber vendors who purchase lumber from up-country sources, whom are most likely part of a clandestine trade in illegal timber exports.⁶⁰ Domestic board vendors can be found throughout the Peninsula, however they tend to cluster, with two or three vendors located in nearby sites or along major traffic thoroughfares, such as the main road into Freetown from Waterloo junction. Waterloo is also a major town for the board trade, as it is the frontier town between the Peninsula and the Provinces, where the open highway converts into more busy streets entering Freetown, which are prone to traffic jams and delays. There is also a considerable clustering of vendors along the road heading down the Peninsula from Lumley, deriving business from the rapid housing construction that is currently underway in this area. The selling of boards tends to have a dramatic dip during the rainy season (June to October) due to an overall reduction in construction activities, issues with transportation on the wet roads, and the inaccessibility of some production sites due to flooded rivers and streams. Although some vendors reported that they experienced a short high demand at the beginning of September as schools reopen in this month every year and carpenters receive contracts to make furniture for them.

Around a dozen different types of tree species are commonly used in the production of boards (see Table 1). However vendors, when selling boards generally break these down simply to refer to the colour of the board. Thus broadly speaking vendors define their stock as being Red Boards⁶¹ and White boards, with the occasional addition categories of Brown Boards⁶² (a variation within Red Boards) and Yellow Boards⁶³ (a variation within White Boards). Red Boards are from harder wood species, and are a higher quality and more expensive type of board. They are predominantly used in the construction of furniture.

⁶⁰ There was a recent exposé documentary on Al Jazeera programme *Africa Investigates*, titled 'Sierra Leone: Timber! A story of corruption that is stripping the west African country bare' which focused illegal timber exports in Sierra Leone. However the documentary is disappointingly sensationalist, claiming that the illegal timber trade is a multi-million dollar industry that is the major cause of deforestation in Sierra Leone. None of the data collected in this research project suggests that the trade is that extensive.

⁶¹ The name probably comes from the Mende name *Njelei* for the commonly sold board species *Entandrophragma angolense*, which literally means 'red.'

⁶² *Melicia regia* is often classified as a Brown Board.

⁶³ Mainly referring boards made from *Terminalia ivorensis*, whose Mende name *Bajii* literally means yellow.

While White Boards are made from softer wood species, and are generally used for building construction, although they are sometimes also used for making cheaper varieties of furniture. The most common tree species used for boards is Yemani (*Gmelina Arborea*), a species that was introduced from India in the 1920s, and has since then been used extensively in forestry tree planting operations.⁶⁴

Table 1 - Population Tree Species for Making Boards Sold in Freetown

Board Colour	Species	Krio ⁶⁵	Mende	Temne
White (and Yellow)	<i>Rauvolfia vomitoria</i>	-	Kowogei	Ka-Bobən
	<i>Ceiba pentandra</i>	Kɔtin-tri [Cotton Tree]	Nguwei	Am-Polon
	<i>Terminalia ivorensis</i>	Ronko	Bajii	Ka-Ronko
	<i>Gmelina Arborea</i>	Yemane / Flawa Tik	Yemane	Yemane
Red (and Brown)	<i>Milicia regia</i>	Iroko	Semei	Tiama
	<i>Entandrophragma angolense</i>	-	Njelei	Ka-Renda
	<i>Azelia Africana</i>	Konta	Kpəndei	Ka-Kontha
	<i>Uapaca guineensis</i>	-	Kondii	An-Lil
	<i>Heritiera utilis</i>	Hamən	Yawii	Ka-folfol
	<i>Daniellia thurifera</i>	Bungbo	Gbesei	Ka-Gbesei
	<i>Khaya anthotheca</i>	-	Anyə-njile	-
	<i>Lovoa trichilioides</i>	Walnut	Wusumei	-

Boards are sourced from all of Sierra Leone's districts except Bonthe, with Red Boards generally being sourced from the south-east of the country in the tropical moist forest zone, while White Boards are mainly sourced from the north of Sierra Leone in the savannah forest zone. Interestingly, no vendors reported that they sourced any of their boards from the Freetown Peninsula (Western Area). Some boards evidently do make their way into Freetown from the Peninsula forests,⁶⁶ however it appears to be a small minority of the trade, perhaps due to the heavy restrictions and increasing monitoring surrounding the Western Area Peninsula Forest Reserve. Most of the vendors personally organise the transportation of the boards they sell from the provinces. For this, they need to cover all transportation and unloading fees, as well as providing advance payments to the supply villages. Many of the vendors also supply the source villages with chainsaws, food for work and other expenses. Thus there are often long term engrained links between source point villages and urban Freetown vendors. The cost of transporting the boards ranges between Le 5,000 and Le, 10,000 per board, depending on the distance travelled, with boards from the Northern Province generally being cheaper to transport (due to its closer proximity).

The supply of boards was discussed as a major issue by nearly all of the vendors. In particular, gaining access to trucks was often noted as a major problem, with many vendors struggling for weeks to secure a vehicle to bring their supplies. Some complained that this was due to the fact that the company African Minerals had chartered most of the trucks for its iron mining operations. However, African Minerals now has a railway in operation, and this is likely to reduce pressure of the road and truck networks. The bad state of the country's road network and the increasing fuel prices were also identified as major issues affecting transportation. Trucks transport between 100 and 1,000 boards per trip, with the larger trucks usually travelling to the south-east of the country, while small to medium trucks will usually service the Northern Province.

⁶⁴ J E D Fox, The Growth of *Gmelina Arborea* Roxb. (Yemane) in Sierra Leone, *The Commonwealth Forestry Review* 46:1(1967): 138-144.

⁶⁵ Only Krio, Mende and Temne names are given here, for names in other Sierra Leonean languages see P S Savill and J E D Fox *The Trees of Sierra Leone* (Freetown: Government Press 1967).

⁶⁶ For example see: *WAPFOR Times* 'Our Efforts, Three power saw machines apprehended in the forest' Volume 1 (2011): 14.

In order to transport and sell boards in the Freetown Peninsula a complicated array of fees must be paid. There is an annual registration fee with the Freetown City Council (FCC) of Le 250,000, an annual tax with the National Revenue Authority (NRA) of Le 250,000 and an annual Forestry Division Vendors' License fee of Le 500,000. A number of vendors said they did not pay FCC fee and instead bribed FCC inspectors when they came for inspections. There is also an optional annual registration fee with the Agricultural Community for Timber Development Association (ACOTIDA) of Le 150,000; a board sellers' advocacy organisation. During transportation a fee of Le 50,000 has to be paid to ACOTIDA at a checkpoint for every truck carrying boards. This fee is ostensibly for afforestation programs. There is also a fee at these checkpoints of Le 1,000 for a one inch board and Le 2,000 for a 2 inch board that has to be paid to the Forestry Division. A receipt is given if these amounts are paid. However most vendors said they negotiated a reduced fee with the forestry officials, some paying as low as Le 200 per board. When a reduced fee is paid, no receipt is issued, and presumably the money does not research government coffers. Finally vendors have to pay Le 1,000 per board to chiefdom authorities where they are harvested from, and another Le 1,000 per board for offloading on the Peninsula. However many vendors say that they transport their loads at night, when the forestry and ACOTIDA officials are not present at the checkpoints, paying small bribes to police and military to let them through. Many of the vendors also owned chainsaws, which they provide to source villages. Chainsaw licensing and registrations is supposed to cost Le 6 million per year. Although most confessed they never paid this fee and relied on bribes and other means to avoid paying it in full.

The selling price of boards varies across the Peninsula, with it being the cheapest in Waterloo, and gradually getting more expensive as one gets closer to Freetown. A reflection of the extra costs involved in transporting materials closer to the city's downtown. Boards are sold in a variety of shapes and sizes. Red Boards are the most expensive, priced between Le 32,000 and Le 40,000 for a 1x12x14" board; and between Le 40,000 and Le 55,000 for a 2x12x14" board. While White Boards sell for between Le 20,000 and Le 32,000 for a 1x12x14" board; and between Le 35,000 and Le 40,000 for a 2x12x14" board. However boards from Cotton Tree (*Ceiba pentandra*) are the cheapest by far, and are sold only in one dimension (1x12x14") at a price between Le 13,000 and Le 15,000. Most of the vendors own carpentry machines in their workshops and can convert these boards to the various sizes required by their customers. However those that do not have such machines have to pay nearby carpenters between Le 1,000 and Le 1,500 per cut.

In terms of the environmental impact of their trade, most vendors are too disconnected from their source point villagers to fully appreciate any impacts on forest cover. Some vendors that had been in the trade for a while, noted that there have been some reduction in forest cover, namely in Kambia, Port Loko and Moyamba Districts. It is, however, interesting to note that the most prominent tree species used for making board is *Gmelina arborea*, which is an introduced species, indicating that a reasonable proportion of board trade does not originate from country's native forests. Also important to note, is that it appears that the forests on the Peninsula play little or no role in supplying the board trade. Even those vendors operating down the Peninsula road reported sourcing their boards from up-country sources rather than the nearby forests.

4.3 Analysis

One of the most pressing issues and voices of complaint from vendors is that of the multiple and sometimes confusing fees and registrations they have to pay to operate their trade. Also, a concern for the Forestry Division is that it appears that very few of the formal fees end up getting paid and instead the trade in boards operates within large a network of informal fees ('bribes'). There is great room for policy improvement in this area, in order to ensure both that board producers are taxed in a clear, fair and proportionate manner and that the Forestry Division can improve its own revenue stream. Data from this

research suggests that there are three main issues driving this informal network of fees. First is that the vendors appear to pay a disproportionate amount of fees considering the small profits that they make. Second, the use of checkpoints to collect fees appears to be extremely inefficient and highly susceptible to illicit payments. Third there is a lack of transparency about where these fees are going. In particular ACOTIDA has a bad reputation among all of the vendors, despite the majority of them still maintaining membership in the organisation.

Below is a rough calculation of what an 'average' board vendor is obliged to pay in fees each year. The calculation is based on the assumption that the vendor has six trucks bringing in 500 each boards (3,000 boards in total) each year, with an even split of 2" and 1" boards, and that they own one chainsaw which is in operation at a source village point. These numbers were based on interviews with the vendors who gave information on the frequency of their resupply and the size of the trucks resupplying them.

Table 2 - Official fees to be paid by an 'average' board vendor

Institution	Type	Price	Frequency	Annual Total
FCC	Registration	Le 250,000	annual	Le 250,000
NRA	Tax	Le 250,000	annual	Le 250,000
ACOTIDA	Membership	Le 150,000	annual	Le 150,000
FD	Vendors License	Le 500,000	annual	Le 500,000
ACOTIDA	Afforestation	Le 50,000	per truck	Le 300,000
FD	Fee	Le 1,000	per 1" Board	Le 1,500,000
FD	Fee	Le 2,000	per 2" Board	Le 3,000,000
Chiefdom	Fee	Le 1,000	per board	Le 3,000,000
Local market	Offloading Fee	Le 1,000	per board	Le 3,000,000
FD	Chainsaw fees	Le 6,000,000	annual	Le 6,000,000
TOTAL FEES			Leones	17,950,000
			US\$	4079.55

Assuming a 60:40 ratio split between White Boards and Red Boards respectively, and a generous profit margin of 30% on each board (after costs associated with point purchasing, transportation, fuel, rent and other incidentals) that same vendor is likely to produce US\$7,500 in untaxed profits for the year for the selling of these boards. In such a scenario the cost of the collective fees and registrations would account for more than half of the annual profits, and would make the business essentially unviable. It is therefore perhaps unsurprising that most opt for bribes and informal measures to avoid paying the bulk of the fees.

The substantial fee for chainsaw registration and licensing was initiated in 2008, after an earlier ban on timber exports by the forestry division in August 2007. The high fee was a deliberate policy by the forestry division, to 'clean up the forestry sector' putting smaller operators out of business and paving the way for larger scale operators to dominate the industry. The idea behind this strategy was that it would be easier to regulate the industry with a smaller number of large operators, rather than a large number of small-scale operators.⁶⁷ It is evident, however, that this somewhat controversial policy has so far been a failure. The policy has not promoted any form of horizontal integration of the board producing market, with industry still characterized with many small-scale vendors operating individual urban vending sites with links to a handful of source villages. Instead a perverse outcome has arisen, causing widespread clandestine chainsaw operations and an informal network of bribes (reportedly involving forestry

⁶⁷ G. Hiemstra-van der Horst 'We are Scared to Say No': Facing Foreign Timber Companies in Sierra Leone's Community Woodlands', *Journal of Development Studies* 47:4 (2011): 574-594.

officials). This suggests there is an urgent need to reprice the licencing fees and the method in which they are collected.

The use of checkpoints to collect fees is evidently not working. Most vendors reported that they are able to pay ‘discounted fees’ if they do not require a receipt (i.e bribes). Others just transport their loads at night, when ACOTIDA and forestry officials are present at their checkpoint, bribing police to let them through. Interestingly annual fees such as FCC registration, NRA tax and even the optional ACOTIDA registration fee (and this is despite widespread resentment toward ACOTIDA) were paid in full by the majority of the vendors, suggesting the collection of annual fees is a more effective in ensuring payment. The notable exception to this is chainsaw license and registration fees. Although the mobility of the chainsaw (allowing for it to operate clandestinely), the exorbitant size of the fee, and the ability to bribe to find other avenues to avoid to fee have rendered it fairly impractical. While undoubtedly there is an appeal for having fee collections at checkpoints in order to make the fee reflective of the amount of produce transported, it is evident that very little of this revenue is making it to the Forestry Division. It would be much more practical to have an overall reduction in fees and fairly priced annual licenses. This would help to ‘legalise’ much of the trade which is heavily reliant of bribes for its viability, while also providing a more reliable (and easier to monitor) stream of revenue for the Forestry Division.

Finally, there needs to be greater transparency in where the collected fees are going to. In particular the role of ACOTIDA needs to come under critical examination. Almost all of the vendors expressed a strong dislike of ACOTIDA, suggesting that most of the fees were being embezzled by the organisation’s top officials. Almost all still pay their annual subscription to ACOTIDA, as they say if they do not then ACOTIDA will cause problems for them. It is a serious concern that the vendors have such a negative perspective of a body that is supposed to be advocating for their rights. ACOTIDA’s collection of fees for reforestation activities is curious, as according to forestry regulations this is the role of the Forestry Division. It would make more sense for the forestry division to collect these monies as it already runs numerous nurseries and tree planting operations. Why this collection has been outsourced to an advocacy organisation is unclear.

The problems surrounding transportation was another vexed issue raised by the board vendors. However the problems surrounding this are likely to improve in the not too distant future. Already the country’s road network has improved considerably in the last few years, which in turn has dramatically reduced travelling times and maintenance costs for vehicles. Likely this will be followed by greater investment in trucks and other forms of transportation by private entities. Already there has been an increase in investment in passenger transport across the country.⁶⁸ While African Minerals has now completed its port railway which will likely free up many more trucks in the near future. The major concern that probably is not being addressed is feeder roads into specific source points, and thus issues of sourcing boards during the wet season is likely to continue.

5. Poles

5.1 Historical Trade

Very little is known about the commercial trade in poles in Freetown, as well as across Sierra Leone in general. Like the other commodities it comes into the greatest prominence during World War Two, when poles were extensively needed for the construction of military bases.⁶⁹ Thus, unsurprisingly, the demand for poles in Freetown increased enormously during the war’s earlier years.⁷⁰ Poles for the war effort were

⁶⁸see *Awoko* ‘New buses but better standards’ 23 June 2011.

⁶⁹ W D MacGregor, “Sierra Leone” *News Bulletin of Empire Forest Departments for 1942*, The IFI and Imperial Forestry Bureau Oxford, (1942): 21-22

⁷⁰ W D MacGregor, *Forestry Report for the Year 1941*, (Government Printer: Freetown, 1942)

subsequently sourced from the Peninsula forests, as well as from some farms in upland Sierra Leone.⁷¹ Yemane (*Gmelina arborea*) and to a lesser extent *Cassia siamea*, were planted at different locations around the Peninsula for the production of these poles.⁷² However after the end of World War Two, little is mentioned about pole production in Forestry Department reports or other sources.

5.2 Contemporary Context

In total 50 poles vendors across Freetown were interviewed. Forty-two of these vendors exclusively sold poles, while four of them sold charcoal and poles, two of them boards and poles and two of them firewood and poles. All of these pole vendors were either the sole owners of their businesses or were in partnership with their relatives. The vending is predominantly conducted by men with a handful of women involved. The age of the vendors ranged between 26 and 58 years, while most had started being involved in the business in the last decade, one vendor had been in the business as long as 32 years. Their customers generally include large construction companies, local builders and carpenters. Most of the pole vendors do not have stores and instead have their product stack up in open areas. Some vendors sleep with their piles of poles to prevent theft, which is a common occurrence. Most vendors stockpile between 100 to 300 poles, they avoid larger quantities as they fear that prolonged exposure to sunlight and rains will cause damage to the poles.

The pole vending industry started to become a widespread enterprise on the Freetown Peninsula just after the civil war. During this period the UNHCR was engaged in the construction of camps for refugees and displaced peoples. The use of poles was critical to the construction of the shelters in these camps and subsequently, according to the vendors interviewed, the price of poles tripled during this period, which caused more and more people to become involved in the trade, particularly in the Waterloo area. The demand for poles has continued to increase since this time as post-war rebuilding and increasing urbanisation provide a steady demand for construction materials. There is an increasing trend of more and more contractors heading into the provinces to buy their poles directly from source villages, which could potentially have an impact of internal Freetown demand. Poles are sold throughout Freetown and the Peninsula. However there are heavier clusters of vendors along the Waterloo to Freetown road, down by the wharfs and in the Goderich area. Demand for poles is highest in the dry season (December to April), mainly as this is the time of year when most construction activities take place. Supply is also hard to come by during the wet season, as most poles come from farms and during this period most farmers are focused on agricultural activities.

Two different species of trees are harvested to make the poles sold in Freetown: *Anisophyllea laurina* and *Pentadesma butyracea*, which are known respectively as *Plum Tik* and *Black Tik* in Krio. The poles are usually sold in three different sizes, with *Plum Tik* generally being in greater demand than *Black Tik* as it is considered to be a higher quality species. Larger poles are used in building construction, while small sticks are used to build smaller structures such as kitchens and *pan bodies* (small shacks).

Table 3 - Tree species used to harvest poles sold in Freetown

Latin	Krio	Mende	Temne
<i>Anisophyllea laurina</i>	Plum Tik	Kanti	Ka-Kants
<i>Pentadesma butyracea</i>	Black Tik	Mbeke-wa	Ka-Yoth

The major source points for poles are in the Moyamba, Bombali, Tonkolili, Bo, Port Loko and Kambia Districts. Some poles are transported by sea from Kambia and Port Loko (hence the clustering of pole

⁷¹ W D MacGregor, "The Forest Production Programme in Sierra Leone" *Farm and Forest* 3:3(1942): 116-119.

⁷² W D MacGregor, *Forestry Report for the Year 1943*, (Government Printer: Freetown, 1944).

vendors at the wharfs), while the rest are transported via the road network. Most vendors buy their poles from source point villages on a contract basis, usually paying 50% of the cost up front and the balance when the harvesting is complete. Some vendors stay in the villages until their poles are harvested. Vendors usually take care of the transportation of the poles to Freetown. If done by sea, it usually costs Le 300,000 to Le 500,000 to charter a boat (transporting up to 300 poles), as well as paying a fee of Le 5,000 to dock their boats at the wharf. To transport by land vendors pay in the range Le 5,000 to drivers to transport a dozen poles, naturally, the further the distance the higher the cost. Vendors usually restock every couple of weeks when demand is high and every couple of months when demand is low.

Like board vendors, pole vendors have to pay a fairly complicated array of fees. Each vendor, depending on the size of their operations, is supposed to pay somewhere between Le 60,000 and Le 150,000 to register their business with Freetown City Council (FCC). However many do not pay this fee and rely on paying bribes if FCC officials visit. While pole vendors are generally not members of ACOTIDA they still need to pay a reforestation fee of Le 50,000 to ACOTIDA for every truckload of poles. Vendors are also supposed to pay Forestry Officials at the checkpoints Le 50,000 for a truck load of poles. However the amount is generally negotiable and most end up paying between Le 20,000 and Le 30,000 per truck. If the price is negotiated to a lesser amount, no receipt is given. If the vendors are unable to pay, the Forestry Officials confiscate the equivalent amount in poles for the fee price. Like with the board trade, many vendors choose to transport their loads at night when ACOTIDA and forestry officials are not working; paying bribes to police at the checkpoints instead to let them through. They also need to pay a fee to the chiefdom from which they are harvesting; this is usually between Le 20,000 to Le 40,000 per trip. While an additional Le 1,000 per dozen poles is often paid in Freetown for people offloading the poles.

Poles are cheapest in Waterloo and get more expensive as one gets closer to Freetown. *Plum tik* is a fraction more expensive than *Black tik* as it is considered to be a higher quality pole. Usually vendors sell their poles by the dozen with the price of a dozen of small poles ranging from Le 10,000 to Le 25,000; a dozen medium poles ranges from Le 15,000 to Le 30,000; and large pole range from Le 30,000 to Le 45,000 per dozen. The price of purchasing poles from source point village general ranges from Le 8,000 to Le 15,000 per dozen – the further away they are from Freetown the cheaper they are.

Like boards vendors, most of the pole vendors are also too disconnected from their source points to be able to observe nuanced changes in forest cover. However a number of them did complain the poles, especially from Port Loko district, being supplied were coming from increasingly younger trees.

5.3 Analysis

Similar to board production, one of the most pressuring issues surrounding pole vending is the collection of fees. There is widespread bribing at checkpoints, resentment towards ACOTIDA and a fee structure that is not reflective of the economic viability of the trade.

Below is a rough calculation of what an ‘average’ pole vendor is obliged to pay in fees each year, as well as its profits. It takes a basic average across all the variables. Assuming 12 trucks of 300 poles medium size poles each year, sold at the average market rate. Transportation, source point purchasing rate and FCC fee are also done as an average. These averages are based on the information given by all of the vendors, as well as the forestry regulations, they are meant to be illustrative and it is important to note that there are great variations between vendors.

	Item	Price (le)	Type	#	Annual total (Le)	Total (\$)
COSTS	Cost of poles at source village	11,500	per dozen poles	300	3,450,000	802.33

	FFC registration	105,000	annual fee	1	105,000	23.86
	ACOTIDA reforestation fee	50,000	per trip	12	600,000	136.36
	Forestry	50,000	per truck	12	600,000	136.36
	Chieftom fee	30,000	per trip	12	360,000	81.82
	Transport	5,000	per dozen poles	300	1,500,000	340.91
	Unloading	1,000	per dozen poles	300	300,000	68.18
	TOTAL				3,465,000	787.50
REVENUE	Medium poles in Freetown	22,500	per dozen	300	6,750,000	1534.09
ANNUAL PROFIT					3285000	746.59

Similar to board vendors, if the ‘average’ pole vendor was to pay all of the official fees, they would equate to more than half of their profits. The above does not take into account rent and other running costs. Thus it is not unsurprising that they rely on bribes instead of paying Forestry and ACOTIDA fees. Suggesting that there is a definite need to restructure (and reduce) the fees to be more reflective of the economic scope of the pole trade. Similar to boards, the whole fee regime is not functioning. The amounts are disproportionately high, paving the way for regular bribes at checkpoint and ultimately an informal network of fee, which likely do not reach the Forestry Division.

The prevalence of *Plum Tik* and *Black Tik* tree species for the poles is very interesting. As in the past most poles were harvested from Yemane (*Gmelina arborea*) and *Cassia siamea* trees. Yemane, in particular, is commonly used as a construction pole up in the north of Sierra Leone and is a tree that is commonly planted in plantations to for the production of poles and firewood in the Freetown area. Why *Plum Tik* and *Black Tik* are preferred over Yemane is not fully clear, perhaps due the prominence of these trees in the nearby districts of Port Loko and Kambia. However it does have implications for government policy, which in the past has viewed the fast growing Yemane species as being ideal for poles. This suggests that plantation experiments with *Plum Tik* and *Black Tik* should be initiated.

6. Firewood

6.1 Historical Trade

Firewood is perhaps the earliest traded forest timber commodity in Freetown. Prior to even the establishment of the Freetown settlement is had been reported that passing European ships in the 17th century frequented the Peninsula to purchase firewood bundles from the Temne and Sherbo communities living there.⁷³ Interestingly, historical records suggest that soon after the initial settlement and growth of Freetown, much of the town’s firewood supplies already came from outside the Peninsula area. Elizabeth Meville, in 1849 writes of how people from upland used to come into Freetown to sell their bundles of wood.⁷⁴ While the *Royal Sierra Leone Gazette* during the late 1890s and early 1900s recorded that each month between 50 to 120 canoes from across the harbour were carrying firewood into Peninsula to be sold in the urban market.⁷⁵ The amount of canoes soon rose dramatically and in 1908, less than a decade later, it was noted that around 30 canoes came across *daily*, each carrying about 250 pieces

⁷³ C Fyfe, *A History of Sierra Leone*, (Oxford: Oxford University Press, 1962)

⁷⁴ E Melville, *A Residence in Sierra Leone* (London: John Murray, 1849).

⁷⁵ See *The Sierra Leone Royal Gazette* 30-32 (1899-1901).

of wood.⁷⁶ At the same time, more firewood was also being sourced from established suppliers in Waterloo.⁷⁷ During the period, the government also put out its own tenders for firewood, inviting applications to supply mangrove or other firewood for the hospitals the jail and the lighthouse.⁷⁸ As Freetown continued to grow, the railway transport became important for supplying the city with fuelwood from medium to long distances. Especially prior to World War Two.⁷⁹ While fuelwood was mostly sold informally by hawkers around Freetown, there were at least two depots up on the waterfront in 1939 selling the commodity.⁸⁰

The advent of World War Two led to a fundamental change in Government policy toward firewood and the forestry industry in general. Production of all wood-based products had to be increased dramatically to fulfil both domestic and wartime needs. A naval base for the South Atlantic command was set up in Freetown, which in turn saw its population grow rapidly with stationed and transiting troops, along with civilians engaged in war-related work.⁸¹ Firewood harvesting was enacted by the Forestry Department in the Freetown Waterworks Reserve (now part of WAPFoR), while areas of poor secondary forest were allotted to military units to harvest their fuelwood needs.⁸² The diminishment of coal supplies also meant that mangrove wood had to be utilised as a temporary fuel for locomotives.⁸³ In 1942, a site at Wellington was identified, and a subsequent harvesting camp was built,⁸⁴ and after earlier tests on the mangrove wood,⁸⁵ the Railway Department placed an order for approximately 20,000 tons of mangrove fuel.⁸⁶ By the end of 1943 a mangrove cutting mill had been establishment at Wellington and the mass production of the mangrove fuelwood occurred.⁸⁷ In terms of production, the mill was a great success, providing enough fuel for locomotives, as well as an excess which were sold to domestic customers or stored in the Freetown timber sheds at Farren Point.⁸⁸ After the end of the war in 1946, the supply of coal to Sierra Leone improved and therefore the mangrove sawmill was closed.⁸⁹

Little is heard about fuelwood in Freetown in the couple of decades after the World War Two in official literature. Cline-Cole, in interviews during the early 1980s, ascertained that there was a thriving business in firewood during this period by waterfront depot operators, who drew their supplies from the shores of Freetown and across the harbour.⁹⁰ There are also some reports of fuelwood plantations being established around the Peninsula.⁹¹ However, it is not until the mid-1970s ‘fuelwood crisis’ did the commodity once again come into the fore in Freetown, and a plethora of literature on the subject was developed on the subject (discussed in the literature above). For the most part, firewood consumption has been seen as a ‘wicked problem’ in Freetown, being symbolic of forest destruction and a lack of modernisation. Most fuelwood related programmes in Freetown, whether governmental or NGO, have been focused on trying to discourage consumption, or the widespread use of plantation, which generally are not based on a good understanding of how the trade operates and specie preferences.

⁷⁶ A H Unwin, *Report on the Forest and Forestry problems in Sierra Leone*, (Waterlow and Sons: London, 1909)

⁷⁷ R A Cline-Cole ‘The Socio-Ecology of Firewood and Charcoal on the Freetown Peninsula’ *Africa* 57:4(1987): 457-497.

⁷⁸ *The Sierra Leone Royal Gazette*, ‘Contract: for the supply of Mangrove Wood (1900)’ 31:602 (1900): 101.

⁷⁹ R A Cline-Cole ‘The Socio-Ecology of Firewood and Charcoal on the Freetown Peninsula’ *Africa* 57:4(1987): 457-497.

⁸⁰ R A Cline-Cole ‘Wartime Forest Energy Policy and Practice in British West Africa: Social and Economic Impact on the Labouring Classes 1939-45’ *Africa* 63:1(1993): 56-79.

⁸¹ R A Cline-Cole ‘Wartime Forest Energy Policy and Practice in British West Africa: Social and Economic Impact on the Labouring Classes 1939-45’ *Africa* 63:1(1993): 56-79.

⁸² W D Macgregor, *Forestry Report for the Year 1941*, Government Printer: Freetown, 1942).

⁸³ W D Macgregor, *Forestry Report for the Year 1940*, (Government Printer: Freetown, 1941).

⁸⁴ W D Macgregor, “Sierra Leone” *News Bulletin of Empire Forest Departments for 1942*, The IFI and Imperial Forestry Bureau Oxford (1942): 21-22

⁸⁵ W D MacGregor, “The Forest Production Programme in Sierra Leone” *Farm and Forest* 3:3 (1942):116-119

⁸⁶ W D Macgregor, *Forestry Report for the Year 1942*, (Government Printer: Freetown, 1943).

⁸⁷ W D Macgregor, *Forestry Report for the Year 1943*, (Government Printer: Freetown, 1944).

⁸⁸ W D Macgregor, *Report on the Forest Administration of Sierra Leone for the Year, 1945*, (Government Printer: Freetown, 1946).

⁸⁹ *Annual Report on Sierra Leone for the year 1946* (1947) London: His Majesty’s Stationary Office

⁹⁰ R A Cline-Cole ‘The Socio-Ecology of Firewood and Charcoal on the Freetown Peninsula’ *Africa* 57:4(1987): 457-497.

⁹¹ D H Hodgson (1951) *Annual Report on the Forest Administration of Sierra Leone for the Year, 1950*, Government Printer: Freetown.

6.2 Context

In total 32 firewood vendors on the Freetown Peninsula were interviewed. Twenty-six of these sold firewood exclusively, while four also sold charcoal, and two also sold poles. The vendors targeted for these interviews were large-scale vendors, while there are many more small-scale firewood vendors scattered throughout the Peninsula. All of these firewood vendors were either the sole owners of their businesses or were in partnership with their relatives. The majority of vendors were women, aged between 32 and 69, although there were a few men involved, namely on the wharfs, who trade in mangrove firewood. Their customers include individual households, bakers, restaurants and fishmongers (who use the wood to dry their fish). Some vendors also sold their firewood to stone miners, who used small fires to heat and crack the stones so that they are easier to break. Most of the vendors store their firewood outside and it is therefore highly susceptible to theft.

In recent years most vendors state that there has been a decline in fuelwood sales, due to an increase in preference for charcoal by consumers. This has been partly driven by landlords, who often ask their tenants to use charcoal in their compounds to help reduce smoke and fire hazards. Many also noted that the invention of the wonder stove for charcoal cooking had also contributed to the reduction in demand, as it drastically reduces cooking times, especially when compared to old fire wood stoves made from rocks. In response to these changes a number of former firewood vendors have now moved into the charcoal business. Firewood vendors are located throughout Freetown, as well as large clusters of vendors in Waterloo, Allen Town and the wharves around the city (ie. Susan's bay, Moa, Kroo bay, Kanikay bay, and Accession Town). There are also vendors who operated from the back of their trucks, which are driven through different parts of Freetown. Firewood supply is harder to get during the wet season, as most of the firewood in Freetown is harvested as a by-product of the farming cycle, and during this period farmers are focusing on planting their agricultural harvest.

Two broad types of firewood are sold in Freetown: mangrove firewood and farm firewood. There is also a small proportion of forest firewood, which, as is evident by its name, is harvested from forests. The specific tree species used to make farm and forest firewood different varies greatly.⁹² Types of mangrove species that are used for firewood are black mangrove, which is the most common and red mangrove (see Table 5). Farm firewood comes by road from the provinces and is harvested as a part of the farming cycle, while mangrove wood is harvested from swampy areas along Sierra Leone's coast and is transported to Freetown by sea and is sold at the various wharves. Mangrove firewood tends to be most popular with fish traders to use for drying and by bakers throughout Freetown, while farm firewood is used mainly for domestic cooking. The mangrove firewood vendors have a local association at each of the wharves and generally operate in an amicable, but competitive manner. There is no association for the other firewood vendors in Freetown.

Table 4 - Mangrove species used for mangrove firewood⁹³

Species	English	Krio	Mende	Temne
<i>Avicennia Africana</i>	Black Mangrove	Sol-wata-mangro	Gbɛlɛtii	Ka-bure
<i>Rhizophora racemosa</i>	Red Mangrove	Sol-wata-mangro	Dengii	Ka-Kɛnt

The majority of firewood in Freetown comes from Kambia Port Loko, Moyamba and Tonkolili districts as well as from the Bo-Freetown, Makeni-Freetown and Kamakwie-Makeni highways. Mangrove

⁹² Cline-Cole gives a good analysis of different wood types used in firewood and their properties in his article: R A Cline-Cole, 'Towards an Understanding of Man-Firewood Relations in Freetown (Sierra Leone)' *Geoforum* 15:4 (1984): 583-594.

⁹³ For a discussion about the different habitats that these differing mangrove type inhabit in Sierra Leone, see: P R Hesse, 'Some Differences between the soils of *Rhizophora* and *Avicennia* Mangrove Swamps in Sierra Leone' *Plant and Soil* 15:4 (1961): 335-346.

firewood comes almost exclusively from Port Loko and Kambia districts. Farm firewood is transported to Freetown via the road network, while mangrove firewood is transported by boat. Most vendors hire trucks to transportation and collect their firewood supplies and do not visit the provinces themselves. The cost of transporting a truckload of firewood to Freetown is generally between Le 150,000 and Le 350,000; they usually transport a few hundred bundles per trip. Police do not let the trucks of firewood enter Freetown during the day, therefore most wait at Waterloo until late in the night before transporting their produce into the city. Mangrove wood vendors pay around Le 150,000 per boat trip for transporting their produce. They usually transport a few hundred bundles of mangrove firewood per trip. Occasionally the boats get raided by the navy on the premise of inspecting the presence of life-jackets on boards. If they do not have life-jackets then they usually just pay a bribe to the navy.

Firewood has the least amount of fees out of all of the commodities discussed in this report. Firewood vendors are supposed to pay Le 50,000 to Le 80,000 per year to register their business with the Freetown City Council (FCC). However many do not pay this fee, relying on unofficial payments instead. Truck drivers are supposed to pay Le 20,000 per cord of firewood to the Forestry Division at a checkpoint. However generally a lesser amount is paid and no receipt is given. Those transporting mangrove firewood into the wharves need to pay a Le 5,000 to dock at the wharf, a Le 5,000 fee to city council for registration and another Le 5,000 for the offloading of the boat. Farm firewood is sold in bundles and piles, while mangrove firewood is always sold by the dozen. A dozen of mangrove firewood costs between Le 1,000 and Le 2,000 (depending on the quality). A bundle of firewood (five to eight sticks) sells for between Le 500 and Le 1,000, while a pile (20 to 50 bundles) sells for between Le 12,000 and Le 24,000.

6.3 Analysis

The current situation with fuelwood in Freetown shows an interesting contrast to many previous studies of the commodity in the city during the 1980s. Rather than being an increasing trade that is causing an impact on the country's forest cover, it instead appears to be a commodity in decline in Freetown, being displaced gradually by charcoal. It also seems to be predominantly harvested as a part of the farming cycle, meaning the direct impacts of its harvest on the country's native forest cover is likely to be very limited. The production of charcoal operates in a completely different political economy to firewood production and future policy relating to fuelwood needs to take this into consideration.

The distinction between mangrove firewood and farm/forest firewood is important one, and are perhaps best appreciated as two distinct commodities. They are harvested from completely different flora species (one from mangroves the other from trees), different environmental contexts (one coastal habitats the other farmland and forests), they have different transport regimes (one via the sea, the other via land) different gendered vendors (one is dominated completely by women, the other has a higher proportion of men), different urban geographies (one is sold from the wharves, the other throughout the city) and different customer bases (one for the food industry, the other for domestic use). Also, in terms of ecological impacts, it would appear that the harvesting of mangrove wood is likely to be detrimental to the environment. Unfortunately, the examination of mangrove harvesting source points fell outside of the scope of this research project, but should be conducted to obtain a complete picture of the trade.

Overall, firewood appears to be the least regulated wood-based commodity in Freetown. This is perhaps due to being perceived as a low value commercial commodity, and therefore there being limited opportunities for taxation and fees. Most policies relating to fuelwood therefore appear to be focused on fuelwood plantations to boost supply and, supposedly, removed pressure from native forests. Maintaining minimal fees on the trade is perhaps an apt policy for the near future, as it is likely the main fuelwood

consumed by the lowest socio-economic groups in Freetown; meaning that any spikes in fuelwood prices is likely to have negative implications for urban household livelihoods.

7. Charcoal

7.1 Historical Trade

The production for charcoal has existed in Sierra Leone for hundreds of years, most likely arriving with Mande migrations into Sierra Leone between 1450 and 1700.⁹⁴ However this charcoal, which was used by blacksmith, involved the production of small pieces of charcoal, which differ from the larger piece which are commercially traded.⁹⁵ In 1908 it was noted that a few charcoal makers were going into the Peninsula forest to harvest Hendui (*Lophira alata*) trees. There was also some charcoal production upcountry in Moyamba made under the auspices of the Government, however very little was sold in the Freetown market and then only at an unprofitable price.⁹⁶

Like firewood, there was massive increase in demand for charcoal during the World War Two period. This caused prices to spiral out in the country, and subsequently in 1942 the Forestry Division became involved in production upcountry in the Kasewe Forest Reserve, and down the Peninsula at River No.2. From the Kasewe Forest Reserve, charcoal was transported to Freetown by train, while the River No. 2 charcoal was transported up the coast by sea.⁹⁷ Initially all charcoal production was done by local kilns (dirt mounds or pits), until six portable steel kilns were ordered by the Forestry Division in 1943.⁹⁸ At River No. 2, the charcoal for these kilns was produce from mangroves and hardwood from the forest (such as Hendui).⁹⁹ In the Kasewe Forest Reserve sawmill waste was used, however the transportation of the charcoal via railway to Freetown proved to be prohibitively costly, and so the trade faltered.¹⁰⁰ After the war charcoal production was moved to the Kenema sawmill area, with greater success, with charcoal being produced for both the Freetown and export (to the United Kingdom) markets.¹⁰¹ Six new kilns went into operation in 1956, and the yields increased considerably.¹⁰² However issues surrounding the disrepair of the railway service soon made the trade unviable.

Between the 1960s and 1980s, despite a lack of government involvement in the industry, the consumption of charcoal increased considerably, from an estimated 0.9% of households using charcoal in the mid-1960s to 37.6% in 1981.¹⁰³ Although it still trailed significantly in use behind the cheaper firewood.¹⁰⁴ During the 1980s, domestic charcoal consumption was still predominantly in Freetown, with some charcoal consumption in other urban areas such as Makeni and Bo.¹⁰⁵ At this time all charcoal consumed on the Peninsula was produced from the Peninsula forests.¹⁰⁶

⁹⁴ Patrick R. McNaughton, *The Mande blacksmiths: knowledge, power, and art in West Africa*, (Indiana University Press, 1993).

⁹⁵ R A Cline-Cole, 'Towards an Understanding of Man-Firewood Relations in Freetown (Sierra Leone)' *Geoforum* 15:4 (1984): 583-594.

⁹⁶ A H Unwin, *Report on the Forest and Forestry problems in Sierra Leone*, (Waterlow and Sons: London, 1909)

⁹⁷ W D Macgregor, *Forestry Report for the Year 1942*, (Government Printer: Freetown, 1943).

⁹⁸ W D Macgregor, *Forestry Report for the Year 1943*, (Government Printer: Freetown, 1944).

⁹⁹ W D Macgregor, *Report on the Forest Administration of Sierra Leone for the Year, 1945*, (Government Printer: Freetown, 1946).

¹⁰⁰ See W D Macgregor, *Report on the Forest Administration of Sierra Leone for the Year, 1946*, (Government Printer: Freetown, 1947). D H Hodgson, *Report on the Forest Administration of Sierra Leone for the Year, 1947*, (Government Printer: Freetown, 1948); D H Hodgson, *Annual Report on the Forest Administration of Sierra Leone for the Year, 1950*, (Government Printer: Freetown, 1951); R S Pelly, 'Forest Industries – Sierra Leone' *Empire Forestry Review* 29:4 (1950): 351-360.

¹⁰¹ A K F Nicol, *Annual Report on the Forest Administration of Sierra Leone for the Year 1954*, (Government Printer: Freetown, 1955); A K F Nicol, *1955 Report on the Forestry Department*, (Government Printer: Freetown, 1956).

¹⁰² A F A Nicol, *1956 Report on the Forest Administration*, (Government Printer: Freetown, 1957); A F A Lamb, *1957 Report on the Forest Administration of Sierra Leone*, (Government Printer: Freetown, 1958).

¹⁰³ R A Cline-Cole 'The Socio-Ecology of Firewood and Charcoal on the Freetown Peninsula' *Africa* 57:4(1987): 457-497.

¹⁰⁴ R A Cline-Cole 'The Socio-Ecology of Firewood and Charcoal on the Freetown Peninsula' *Africa* 57:4(1987): 457-497.

¹⁰⁵ James Kamara, *Firewood Energy in Sierra Leone – Production, Marketing, and Household Use Patterns* (Verlag Weltarchiv: Hamburg, 1986); O R Davidson *Energy Use Patterns, Sierra Leone*, Manuscript Report, (International Development Research Centre (IDRC): 1985).

¹⁰⁶ R A Cline-Cole 'The Socio-Ecology of Firewood and Charcoal on the Freetown Peninsula' *Africa* 57:4 (1987): 457-497.

7.2 Context

A total of 41 charcoal vendors on the Freetown Peninsula were interviewed. Thirty-three of these sold charcoal exclusively, while four also sold poles, and another four also sold firewood. The vendors targeted for these interviews were large-scale vendors, while there are many more small-scale charcoal vendors (selling by the plastic bag) scattered throughout the Peninsula. The large-scale vendors interviewed generally act as wholesalers buying from the village source points and then selling on to the small-scale vendors around the city, although some do work as retailers as well. The majority of the vendors were women aged between 28 to 55 years. Quite a few of them were Liberians who were refugees during the civil war and had subsequently permanently settled in Sierra Leone. The main customers for charcoal are domestic cooking uses as well as some businesses in the hospitality industry (i.e. restaurants, hotels).

As noted in the firewood analysis, there has been a general trend in Freetown of more households using more charcoal as their domestic fuel, displacing the use of firewood. This in part because charcoal is perceived to be a superior and more efficient cooking fuelwood (particularly when used in conjunction with the wonder stove), as well as many landlords requesting that tenants should not use firewood in their compounds, so as to reduce smoke and fire hazards. There has been a gradual move of some firewood vendors into the charcoal vending business. Large-scale vendors are based at ‘charcoal grounds’, areas designated for charcoal across the city that store up to a few hundred bags of charcoal at a time. The largest one being located in Allen town on the far eastern edge of Freetown as well as sizeable ones being located at each of the wharves. From these ‘charcoal grounds’ the bags of charcoal are then distributed throughout the city to smaller scale charcoal sellers. Many of the vendors are come from the provinces and sleep in rooms that are supplied at the charcoals grounds. Sometimes when the rooms are full the vendor needs to sleep outside. During the holidays it is not uncommon for students in the districts to come to Freetown to sell charcoal they have produced. A handful of vendors interviewed had been selling charcoal since before the civil war, however the majority of them had come into the business in the last few years as the demand for charcoal in Freetown has dramatically increased. The demand for charcoal is always highest during the wet season, especially from August to October, this is possibly as this is the low season for firewood supply. Unlike firewood, most charcoal in Freetown is not produced as a part of the farming cycle, but rather is produced by villages that specialise in charcoal production. Hence supply is less affected by a change in farming activities.

Charcoal is generally classified into too broad types: ‘iron coal’ and ‘bush coal’. Iron coal is made from harder tree species and tends to be a high quality (longer lasting coal), and is therefore more expensive and in greater demand. Interestingly, however, some of the new vendors in the industry did not know the difference between the two types of charcoal, suggesting that the commodity is becoming more homogenised. The most popular tree species to make this coal are *Pterocarpus erinaceus*, *Ficus exasperata* and *Amphimas pterocarpoides*.

Table 5 - Major tree species used for charcoal in Freetown

Species	Krio	Mende	Temne
<i>Pterocarpus erinaceus</i>	-	Gbwɛne	Ka-Thai
<i>Ficus exasperata</i>	Krach-lif	Kaamei	Ka-Nana
<i>Amphimas pterocarpoides</i>	-	Njombo-wuli	Ka-Thanka

The districts of Kambia and Port Loko were identified as the sites where the best charcoal in Sierra Leone is produced. Some charcoal is also sourced from Moyamba, Tonkolili and Bombali districts (especially along the highways) as well as by the villages along the Freetown Peninsula, although there is increasing

pressure from the Forestry Division for vendors to stop buying charcoal made from the Peninsula's forests. Also the 'Management of the Western Area Peninsula Forest Reserve (WAPFoR) Project', being implemented by Welthungerhilfe (WHH) and the Environmental Forum for Action (ENFORAC), has been targeting charcoal makers operating in the reserve, providing them with alternative forms of livelihoods.¹⁰⁷ Thus it appears that in the long-term the Peninsula Forests will be decreasingly used as a source point for charcoal production. There is also some charcoal coming from the Bo and Kenema districts, this is usually because the vendor in Freetown has direct links with relatives in these districts. Any further than this the costs of transporting the charcoal to Freetown proves to be prohibitively high. Charcoal from Moyamba is generally made from wood that is produced as a part of the farming cycle. While in the other districts charcoal is often made by specialist producers. Some vendors are Freetown based, while many come from the districts to Freetown to sell their produce. They pay Le 800 per night to sleep in rooms at the 'charcoal grounds'. Some produce their own charcoal and bring it to Freetown, while others buy it from producers. The vendors who are not Freetown residents generally want to sell their charcoal quickly and return to the provinces, so they often sell their charcoal at a lower rate. Like with firewood, police do not let the trucks of charcoal enter Freetown during the day, therefore most wait at Waterloo until late in the night before transporting their produce into the city. Usually between 50 and 3,000 bags are transported per trip, with the costs being between Le 3,500 and Le 10,000 depending on the distance. Most vendors usually restock every couple of weeks.

Charcoal vendors are supposed to pay the Freetown City Council (FCC) a business registration fee between Le 100,000 and Le 200,000 per year. However most of them do not pay this. Small-scale vendors (selling by the plastic bag) have to pay Le 300 per day in market dues. At checkpoints Le 2,000 per six bags is supposed to be paid to forestry officials, however, as with the other commodities, this price is negotiable, and if a 'discount' is negotiated no receipt is given (usually Le 30,000 to Le 60,000 per truck is paid). One thousand Leones is generally paid per bag for loading and unloading of the bags onto trucks, while 4% of the charcoal bags (2 out of every 50) along with Le 500 to Le 800 per night is given to the 'charcoal ground' owner. Some vendors transport their bags of charcoal by sea from Port Loko, paying around Le 3,000 per bag of charcoal as well as Le 5,000 for docking their boat at a Freetown Wharf, Le 5,000 to FCC and another Le 5,000 for offloading the boat at the wharf.

Charcoal is usually bought from the provinces for between Le 5,000 and Le 10,000 per bag. It is then sold in wholesale from the charcoal grounds for between Le 14,000 and Le 17,000. Those selling at these wholesale prices are generally vendors who come from the provinces and are in a rush to sell their produce (as time spent in Freetown means more money spent on food, accommodation, storage fees etc). Vendors based in Freetown, who have more time to sell their stock, tend to sell their bags at retail prices which vary between Le 18,000 and Le 28,000. Once again charcoal tends to be cheaper between the eastern part of Freetown and Waterloo and more expensive in the Western part of Freetown. A bag of charcoal at IMATT up past Hill Station costs Le 28,000. A bag of iron coal is generally a couple of thousand Leones more expensive than forest coal. However in some parts of Freetown customers no longer distinguish between the two and pay a homogenised price. Small plastic bags of charcoal are sold between Le 500 and Le 2,000 per bag.

7.3 Analysis

The trade in charcoal has certainly been the most dynamic and changing out of all of the commodities discussed. In the 1980s it was a minority household fuel across Freetown and a couple of other urban centres. During this time most of Freetown's charcoal was reportedly produced from the Peninsula's forest. Since the end of the civil-war there has been a massive increase in charcoal production at the

¹⁰⁷ For example see *WAPFOR Times* 'WAPFOR provides motorbikes for Eleven Communities,' Vol 1 (2011): 20; *WAPFOR Times* 'Skills training for Charcoal burners, stone miners and wood cutter in Malama and Waterloo,' Vol 1 (2011): 7.

national level and charcoal consumption in urban areas (most notably Freetown). Most production now seems to be occurring in the provinces, with even many villages being specialist charcoal producers (rather than farmers), demonstrating the importance of the commercial trade. The increase in provincial production of charcoal has largely been driven by the displacement of people during the war. Where displaced peoples in Sierra Leone or refugees across the border in Liberia learnt how to make charcoal and brought this skill back to their home village. Also many villages learnt the technique from Liberian refugees based on different camps across Sierra Leone. Thus, a by-product of the mass people displacement caused by the Sierra Leonean and Liberian civil wars was the sharing of different rural livelihood skills; the techniques of charcoal production evidently being one the quickest livelihood skills that was transferred.

However, it is important to note that charcoal is unlikely to ever completely replace firewood as urban household fuel. In rural areas, firewood is almost exclusively the primary fuel consumed, while charcoal is just produced as a traded commodity to be sold to urban vendors or residents. Thus, as rural residents move to Freetown they are, at least initially, still maintain preferences for more familiar fuel types. Charcoal is also unlikely to fulfil all different cooking needs which different types of firewood provide (i.e. variation within smoke quality and quantity, combustion, calorific value etc.).¹⁰⁸ This is perhaps noticeable with mangrove firewood, as it tends to fill a niche market in Freetown, fuelwood for bakers and fish mongers for smoking; a role that has been fulfilling at least since the early 1980s.¹⁰⁹

The geography of the trade of charcoal in Freetown is interesting and contrasts somewhat with the other commodities discussed here. A large number of the major vendors are not Freetown-based, rather they travel to Freetown intermittently to sell their produce. This is different to all of the other wood-based vendors who are permanently Freetown based. This poses different challenges for regulations, particularly annual fees, as they do not operate from a permanent vending location which can be registered and monitored. The widespread use of charcoal grounds, however, offers potentially useful sites for the monitoring and regulation of the trade. If all major charcoal traders are required to use these grounds, then forestry staff and other officials could utilise them to engage with traders and establish relevant and fair fee structures.

8. Conclusions and Recommendations

The trade in wood-based products is characterised by numerous small-scale vendors and transporters operating across different areas of Freetown and the Peninsula. Wood based products flow to Freetown from all corners of the country, and while almost all of the districts produced all of the different wood-based products, there is some evidence of regional specialisation. Red Boards predominantly flow to Freetown from the south-east of the country, while White Boards are sourced mainly from the districts of the Northern Province. Poles flow from the Northern and Southern Provinces, while the bulk of Freetown's charcoal comes from Port Loko and Kambia District, probably due to their proximity to Freetown and the fact that they don't have significant local markets for the produce. Finally, firewood is sourced from all of the major highways leading towards Freetown. Unsurprisingly the supply of boards has the furthest geographical reach as it is the most valued commodity. There are also distinct gender divisions in the trade with women being the predominant ones involved in the fuelwood trade (with the notable exception of mangrove firewood) and men being dominant in the timber trade. The overall trade is highly reliant on informal fees and processes for its viability. This is partly due to the current unrealistic fee structure as well as the current methods of fee collection employed by the Forestry Division.

¹⁰⁸ R A Cline-Cole, 'Towards an Understanding of Man-Firewood Relations in Freetown (Sierra Leone)' *Geoforum* 15:4 (1984): 583-594.

¹⁰⁹ R A Cline-Cole, 'Towards an Understanding of Man-Firewood Relations in Freetown (Sierra Leone)' *Geoforum* 15:4 (1984): 583-594.

There has been a major boom in all of the wood-based products in the post-civil war era of Sierra Leone. The demand for poles and boards was initially driven by reconstruction efforts and is now driven by Freetown's constant expansion and the construction associated with it. Firewood has also increased its value as a commercial commodity, although overall it appears to be in decline and is increasingly being displaced by charcoal as the preferred fuelwood for Freetown residents. Overall, the wood-based product trade is likely to increase in Freetown, and the need for the re-regulation of this sector is desperately needed. There are also numerous areas of additional areas of research that need to be conducted in relation to the trade. While there will be much more developed and extensive recommendations in the final report of the research project, a few recommendations are given below that arise from the examination of Freetown data.

8.1 Research on Plum Stick (*Anisophyllea laurina*)

The widespread harvesting of the tree species Plum Tik (*Anisophyllea laurina*) (sometimes also referred to as Monkey Apple), and to a lesser extent Black Tik (*Pentadesma butyracea*), to make poles for the Freetown market is interesting and needs further examination. In the past other tree species, particularly Yemane (*Gmelina arborea*) have been planted by the Forestry Division and other organisations for the pole market, and while Yemane is still used for making poles in some areas (i.e in the Northern Provinces) it seems that it is getting increasingly displaced by *Anisophyllea laurina* in the pole market. In conjunction with this trend, more research is needed to understand the surrounding *Anisophyllea laurina*. How it copes in nurseries, plantations, how it interacts with other species and so forth. Previous research indicates that it is often harvested with coppicing techniques,¹¹⁰ that it also utilised for medicinal purposes,¹¹¹ and that it is sometimes used for firewood (although it is considered to be a low quality variety of fuelwood).¹¹² However, overall the research on *Anisophyllea laurina* is very limited, particularly in the Sierra Leonean context.

8.2 Charcoal production techniques/alternatives

Charcoal production has taken off in the past decade in Sierra Leone. It seems that many communities make the progression from making some charcoal as a part of the farming cycle, to higher productions of charcoal which is harvested from the forest, to the extent it is eventually displacing farming as a community's main livelihood activity. The full impact of charcoal production on forest cover is still very much largely unknown (the landcover analysis in the final report should hopefully shed some more light on it), however it is likely to have a higher impact than firewood production. However one should avoid promoting a 'fuelwood crisis' perception of the trade, rather the focus should be on making the trade more efficient and having minimal impacts. Research and field testing is needed to be conducted to see if improvements can be made on existing charcoal harvesting and producing techniques used by communities; with a focus on increasing the efficiency of production and a reduction on its forest impacts.

8.3 Revision of fees

The fees surrounding the trade need to be restructured, both in terms of how they are collected and their pricing levels. Currently the fees, in particular for poles and boards, are too high and complicated and subsequently a large network of informal fees and measures have been adopted by those involved in the trade. This has constrained revenue reaching the Forestry Division as well as creating uncertainty for

¹¹⁰ A E Nyerges, "Coppice Swidden Fallows in Tropical Deciduous Forest: Biological, Technological and Sociocultural Determinants of Secondary Forest Successions" *Human Ecology* 17:4 (1989): 379-400; A E Nyerges, "Ethnography in the Reconstruction of African Land Use Histories: A Sierra Leone Example" *Africa* 66:1 (1996): 122-144.

¹¹¹ A R Lebbie and R P Guries, "Ethnobotanical Value and Conservation of Sacred Groves of the Kpaa Mende in Sierra Leone" *Economic Botany* 49:3 (1995): 297-308.

¹¹² R A Cline-Cole, "Towards an Understanding of Man-Firewood Relations in Freetown (Sierra Leone)" *Geoforum* 15:4 (1984): 583-594; R A Cline-Cole "The Socio-Ecology of Firewood and Charcoal on the Freetown Peninsula" *Africa* 57:4(1987): 457-497.

many of those in the trade, who have to operate in a semi-clandestine manner in order to keep their trade profitable. Certainly there is much room for improvement and the creation of a scenario that is better for all parties involved (with the exception perhaps of those who are profiting from the ‘informal fees’).

The collection of fees at checkpoints appears to be the most susceptible to bribes, and it is strongly recommended that the Forestry Division to reconsider this policy. Annual fees (such as those imposed by FCC and NRA), for the most part, appear to be the more regularly paid by vendors, suggesting this is a more effective method of revenue collection. Curiously, the vendor license fee (of Le 500,000) written into forestry regulations appears to be unenforced. It is recommended that this fee becomes (re)enforced and increased (with quarterly payments as an option) in conjunction with a major reduction or even possibly an elimination of fees at checkpoints. Overall, there should be a reduction in the amount of fees paid by poles and board traders; if the revenue collection is more efficient (i.e less informal fees/bribes) then this should equate to no reduction in revenue for the Forestry Division. While it is understandable that there is a desire to collect fees at checkpoints to make them reflective of the volume of products traded, it is not a plausible method. First, informal fees appear to arise and even some of the old vendors describe having almost ‘business agreements’ with long-term checkpoint workers; meaning that revenue raised from the checkpoints is by no means a reflection of the volume of trade. Second, the current fee structure only discriminates in terms of the size of the wood (or the size of the truck in the case of poles), and does not take into account the tree species, from where it was harvested or the harvesting technique that was utilised. Meaning its ability to be a proportionate fee is very limited. In terms of the volume of the trade, the Forestry Division should collect this data as part of ongoing field operations and then utilise this to inform future fee increases and changes. It should not be collected in conjunction with fees due to the reasons given above.

ACOTIDA should not be collecting the afforestation fee, this should be collected by the Forestry Division and perhaps included the overall annual vendor fee. Similarly, while there are arguments for collecting this *in situ* to make it more reflective of harvests, the current method is flawed. Currently the fee is generic, Le 50,000 per truck, regardless of truck size, tree species (native, introduced etc), harvesting type (stumped, coppiced etc), harvesting location (forest reserve, national park, household land etc.). Therefore, in reality it has little or no reflection of compensating for the ‘deforestation’ that is occurring.

8.4 Need for cooperatives / advocacy

Representative organisations are needed for the different commodity vendors. Currently there is only an organisation for boards (i.e. ACOTIDA) and for mangrove firewood sellers. This overall lack of collective organisation means that the vendors of wood-based products generally lack a voice in policy discussions that affect their trade. With greater input from these stakeholders, the fees and regulations create by forestry could be a lot more efficient, fair and effective. Such organisations could also play a role in collecting different data about their respective trades, which would also feed into policy and project processes. To initiate such organisations, an outside catalyst (perhaps from an NGO) is almost certainly needed to promote their preliminary formation and governance structures. Lessons should be learnt from the example of ACOTIDA, which appears to have become too far attached from its rank and file membership to properly advocate on their behalf.

8.5 Research on Mangrove harvesting

More research is needed on the harvesting of mangroves for firewood. Specifically more information is needed on how it is harvested, where it is harvested, relations between vendors and harvesting site/communities, environment impacts of harvesting, and investigations into possible alternative fuels. Such alternatives need to take into account that currently preferences by fish driers and bakers for the mangrove fuelwood, and ensure the alternatives address these preferences. The health of mangroves

should be a bigger concern in Sierra Leone. There was extensive harvesting of mangroves during the first half of the 20th century under the auspices colonial government, while currently there is both urban and farming encroachment into mangrove areas, as well as artisanal salt mining which involves the removal of mangroves. In recognition of the importance of mangroves the Sierra Leone River Estuary has been declared a Ramsar site, and has been recognised as an important site for numerous bird species.¹¹³ However, broader research on the extent and health of mangroves in Sierra Leone is generally lacking.¹¹⁴

¹¹³ For example see G D Field, "Utilization of Mangroves by Birds on the Freetown Peninsula, Sierra Leone" *Ibis* 110:3 (1968): 354-357.; A Tye and H Tye, "The importance of Sierra Leone for wintering waders" *Water Study Group Bulletin* 49 (1987): 71-75;

¹¹⁴ M L Wilkie and S Fortuna *Status and Trends in Mangrove Area Extent World Forest Resources Assessment Working Paper* 63 (FAO 2003).