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INCENTIVIZING NO- DEFORESTATION PALM OIL PRODUCTION IN LIBERIA AND THE DEMOCRATIC REPUBLIC OF CONGO

FOREST CARBON, MARKETS AND COMMUNITIES (FCMC) PROGRAM

FEBRUARY 2015

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ACRONYMS AND ABBREVIATIONS

AAF	African Agriculture Fund
CGIAR	Consultative Group on International Agricultural Research
CPO	crude palm oil
DRC	Democratic Republic of Congo
EVD	Ebola Virus Disease
EPA	Environmental Protection Agency
EU	European Union
FCPF	Forest Carbon Partnership Facility
FDA	Forestry Development Authority
FFBs	fresh fruit bunches
FLEGT	Forest Law Enforcement, Governance and Trade
FMC	forestry management concession
FPIC	free, prior, and informed consent
FPP	Forest Peoples Programme
GAR	Golden Agri-Resources
GBE	Groupe Blattner Elwyn
HCS	High Carbon Stock
HCV	High Conservation Value
IFC	International Finance Corporation
IMF	International Monetary Fund
INERA	Institut National pour l'Etude et la Recherche Agronomique
MOA	Ministry of Agriculture
NFRL	National Forestry Reform Law
NGO	nongovernmental organization
P&C	Principles & Criteria
PHC	Plantations et Huileries du Congo
PROFOR	Program on Forests

PRS	Poverty Reduction Strategy
RSPO	Roundtable on Sustainable Palm Oil
SHARP	Smallholder Acceleration and REDD+ Programme
SHOPS	Smallholder Oil Palm Support
TFA2020	Tropical Forest Alliance 2020
TSC	timber sales contracts
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
VPA	Voluntary Partnership Agreement
WWF	World Wildlife Fund

EXECUTIVE SUMMARY

Palm oil is the world's most widely used vegetable oil. Currently, most of the world's palm oil comes from Southeast Asia, with Indonesia and Malaysia representing 86 percent of global production (Roundtable on Sustainable Palm Oil [RSPO], 2014). As global demand for palm oil grows, Africa is increasingly viewed as an important frontier area for the expansion of large-scale oil palm cultivation. This perception is due, in part, to Africa's relative availability of land and to government interest in advancing economic development through oil palm cultivation.

Liberia and the Democratic Republic of Congo (DRC) are both highly suitable for oil palm cultivation and contain vast areas of intact tropical forests important for biodiversity conservation and climate mitigation. Oil palm development in the region has the potential to spur much-needed economic development, offering employment opportunities for rural communities and potential revenue for government programs. It also has the potential to encroach on high-value forest areas in the region. While both countries face significant development needs after long periods of conflict, it will be important to ensure that these needs are balanced with conservation so that development does not come at the expense of critical forest resources. This paper identifies the key barriers and opportunities for developing a zero-deforestation palm oil subsector in Liberia and the DRC.

Currently, both countries have nascent palm oil industries that will require a coordinated effort among government agencies, plantation and processing companies, and civil society to overcome key barriers and develop a zero-deforestation palm oil industry. Each country presents significant opportunity for increasing productivity on existing oil palm plantations. Yet in each country there is the potential for oil palm development to drive conversion of high conservation value areas and high carbon stock forest areas. Therefore, the barriers to sustainable, zero-deforestation palm oil production in Liberia and the DRC are formidable, and it is uncertain whether this goal is achievable in the context of these two highly impoverished, densely forested countries that view the sector as a means of economic development.

Sustainable development of the palm oil industry must encompass a holistic approach that enables economic development while maintaining forested areas, particularly those with important climate, cultural, and biodiversity values. This approach will require a combination of: i) effective policies and governance; ii) renewed investment in extension services and research; iii) improved market infrastructure and production efficiencies; iv) safeguards that protect the rights of indigenous peoples and local communities; and v) the development of a cadre of Liberian and Congolese professionals to implement the necessary sustainability strategies and investments.

TABLE I. OVERVIEW OF KEY BARRIERS AND OPPORTUNITIES FOR ZERO-DEFORESTATION PALM OIL DEVELOPMENT IN LIBERIA AND THE DRC

Barriers	Opportunities
<p><i>Weak governance and policy environment</i></p> <p>The lack of government capacity to develop, implement, and enforce policies that promote sustainable oil palm development and concerns about long-term security of investments present challenges in driving the necessary investment into the region.</p>	<p><i>Promote effective policies and improved governance</i></p> <p>Support government efforts to develop green palm oil development plans, increase forest management and enforcement capacity, and promote transparency in concession and land use planning processes.</p>
<p><i>Lack of access to extension services and inputs to improve production on existing plantations and degraded lands</i></p> <p>Production levels on existing oil palm plantations are extremely low in both Liberia and the DRC, averaging 2-3 metric tons (tonnes) of fresh fruit bunches per hectare. Actions needed to increase productivity on existing plantations and degraded land will require reinvestment in research and extension in both countries.</p>	<p><i>Invest in extension services and research programs to improve oil palm productivity on existing lands</i></p> <p>Strengthen extension services of the government and the private sector and invest in rehabilitation, inputs, and nurseries, as well as research and development efforts to identify the most effective production systems for the countries. Enhance capacity of financial institutions to support productivity investments by the sector.</p>
<p><i>Lack of processing and transportation infrastructure</i></p> <p>Both Liberia and the DRC lack good roads and modern processing infrastructure necessary for efficient transportation and processing of fresh fruit bunches.</p>	<p><i>Improve market infrastructure and processing efficiencies</i></p> <p>Invest in modernization of mills to improve extraction rates and meet future production increases. Invest in improved transportation infrastructure to improve quality and support development of export markets.</p>
<p><i>Poor socioeconomic conditions of local communities that could drive forest conversion</i></p> <p>Lack of clarity regarding land tenure and resource rights presents a significant challenge for oil palm development in both Liberia and the DRC. While the contexts differ, the potential for plantation companies to run into land-related grievances is high in both countries. Additionally, hazardous and exploitative working conditions are significant issues within the oil palm sector.</p>	<p><i>Integrate social and environmental safeguards within oil palm development strategies and investments</i></p> <p>Invest in incentive programs that link technical assistance and economic development programs to forest conservation via Reducing Emissions from Deforestation and Forest Degradation (REDD+) and/or voluntary conservation agreements. Support policies promoting free, prior, and informed consent with smallholder communities, as well as protection of worker rights.</p>

<p>Lack of necessary expertise and capacity to implement sustainability programs</p> <p>Both countries suffer from a lack of local capacity to implement sustainable development strategies for the sector, due in part to the lengthy violent conflicts in both countries and the time it takes to rebuild the human capacity necessary for staffing government agencies, nongovernmental organizations (NGOs), and plantation and processing companies.</p>	<p>Enhance local capacity to implement sustainable palm oil development strategies</p> <p>Support training and capacity building programs to ensure that there is sufficient capacity for effective implementation of land use planning, RSPO certification, and agriculture research and development to support a sustainable palm oil subsector.</p>
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Analysis of these opportunities (see Table 2 below) identifies investments in governance, extension, processing capacity, and social and environmental safeguards as offering the greatest potential for buoying development of a sustainable palm oil industry in Liberia and the DRC. Social and environmental safeguards must complement any investment in extension and market infrastructure development in order to ensure against forest conversion as the sector becomes more profitable and is seen as a driver of economic development.

TABLE 2. OPPORTUNITY ANALYSIS OF ZERO-DEFORESTATION PALM OIL DEVELOPMENT INVESTMENTS

	Promote effective policies and improved governance	Renew investment in extension services/ research to improve productivity	Improve market infrastructure and processing efficiencies	Implement voluntary social and environmental safeguards	Create local capacity to enable implementation of sustainable palm oil development
Scale of Impact	High	High	High	High	High
Target Groups	Ministries of Agriculture, Forestry, Environment, etc.	Ministry of Agriculture, universities, plantation companies	Plantation companies, cooperatives, government agencies	Plantation companies, smallholders, civil society, government agencies	Universities, civil society, government agencies, plantation companies, smallholders
Complementarity in Region	Leverages voluntary private sector commitments	Supports private sector and government commitments to rejuvenation	Supports government and corporate production goals	Complementary to government policy and industry standards	Supports implementation of all opportunities
Development Benefits	High	High	High	High	Moderate
Environmental Impacts (positive)	High	High	Moderate	High	Moderate

	Promote effective policies and improved governance	Renew investment in extension services/ research to improve productivity	Improve market infrastructure and processing efficiencies	Implement voluntary social and environmental safeguards	Create local capacity to enable implementation of sustainable palm oil development
Environmental and Social Risks	Moderate	High	High	Low	Low
Implementation and Sustainability Challenges	High	Moderate	Moderate	Moderate	Moderate
Cost	Moderate	High	High	High	Moderate

1.0 INTRODUCTION

Palm oil is the world's most widely used vegetable oil. Currently, most of the world's palm oil comes from Indonesia and Malaysia, which together represent 86 percent of global production (RSPO, 2014). However, as global demand for vegetable oils in general, and palm oil in particular, continues to increase, Africa is viewed as an important frontier area for the expansion of large-scale oil palm cultivation. While Africa remains a net importer of palm oil (Food & Agriculture Policy Research Institute, 2012), African governments see oil palm development as a potential source of tax and export revenue; and a growing number of investors, including some of the world's largest plantation companies, are finding concession areas easier to secure in Africa than in other parts of the world such as Asia.

The oil palm context in Africa differs significantly from that of Southeast Asia. Development levels in many of the target investment countries in Africa remain extremely low, and many have some of the last remaining areas of intact, high biodiversity and high biomass forest. This context creates a situation in which oil palm development could require tradeoffs with forest conservation. Oil palm investment in the region is increasing significantly, and while this investment could spur much needed economic development, it also has the potential to drive significant forest losses and affect the rights of local communities unless effective policies and strategies are implemented to protect forests while enabling oil palm development.

The objective of this paper is to identify and develop options for actions that the U.S. Government could take to support a transition to the production and sourcing of zero-deforestation palm oil from countries in Africa that harbor large areas of intact forests and have significant potential for oil palm expansion. The opportunities identified are based on a thorough literature review, including forest cover data for both countries, as well as interviews with key stakeholders using a semi-structured questionnaire¹. The goal is to spur a dialogue that will inform the development of strategic investment opportunities for the Tropical Forest Alliance 2020 (TFA2020) member companies, the U.S. Government, and other donors. The paper focuses on Liberia and the Democratic Republic of Congo (DRC) based on an analysis of forest cover and potential for oil palm expansion across several countries in the region.²

This next section provides an overview of the palm oil sector and its state of development in Africa. The following section provides a discussion of the barriers to creating a zero-deforestation palm oil sub-sector in Liberia and the DRC. We then discuss opportunities to overcome these barriers and create incentives for zero-deforestation palm oil in these two countries, drawing on lessons learned from palm oil in other regions and other commodities in Africa. Finally, we conclude by prioritizing the key barriers that need to be addressed to safeguard against deforestation within the palm oil sub-sector and identifying the most promising opportunities for collective action to address these barriers.

¹ For sample interview questionnaire, see Annex 1.

² For results of the analysis, see Annex 2.

2.0 OIL PALM DEVELOPMENT IN THE AFRICAN CONTEXT

Oil palm originated in West Africa, and the region is well suited for its cultivation. About 60 percent of the dense humid forests of the DRC alone (approximately 47 million hectares) are ecologically suitable for oil palm cultivation (Stickler et al., 2007). Currently there is tremendous interest in establishing large oil palm plantations in the region to meet local and international demand. Historically, production occurred at a small scale, with naturally growing oil palm and artisanal processing providing palm oil for household use and local markets. Today, public and private actors are involved in establishing a robust, commercially viable palm oil sector in the region. These actors include ministries of agriculture, public and private financiers, oil palm plantation companies, processing and trading companies, consumer goods manufacturers, and retailers. Smallholder producers and small-scale processors also play a key role in the sector, especially in supplying the domestic market with cooking oil. Each of these actors has an ability to influence the development of the sector and determine whether it evolves into a sustainable, zero-deforestation model – or one that results in forest clearing. This section describes each of these actors and the role they can play in promoting sustainable palm oil development in the region.

2.1 PLANTATION COMPANIES

Large-scale plantation companies are looking at west and central Africa as a region ripe for oil palm development. Since 2005, oilseed crops have drawn the most interest from investors, representing 60.4 percent of all land acquired in Africa. Oil palm alone represents 21.8 percent of all concessions, making it the second-largest crop in terms of total area acquired for cultivation (Schoneveld, 2014).

Recent investments by Sime Darby and Golden Veroleum (whose majority investor is Golden Agri-Resources (GAR), part of the Sinar Mas Group) in Liberia are examples of the scale of development underway in the region. Together, concession areas for these two companies alone total more than 500,000 hectares (ha) and represent approximately US\$3.8 billion in investment (Sime Darby, 2014; Golden Agri-Resources, 2010). Their interest in the region could spur much-needed economic development, but it could also convert critically important forest areas to agriculture use, considering that these concessions border several national parks and critical wilderness areas. In the DRC, three companies—Feronia (Plantations et Huileries du Congo), Groupe Blattner Elwyn, and Socfinaf SA—are managing the major plantations in the country, covering approximately 150,000 ha (Maquet, 2013).

Because of the potential economic development their investments would bring, plantation companies have a high level of influence with the government, which could affect forests and communities. However, these companies face significant uncertainty and risk related to land tenure and increasing instances of social conflict with communities.

Large companies are able to access the finance, technology, inputs, processing, and markets necessary to establish a viable palm oil sector in the region (Megevand et al., 2013). Through plantation establishment, they also present employment opportunities for local communities as an alternative to shifting cultivation. They can also foster partnerships with smallholders to promote better agricultural practices and can invest in schools and hospitals to provide improved social infrastructure. The level of influence of the plantation companies depends in large part on the governance and regulatory environment of a

country. To ensure sustainable development of the sector, plantation companies should act in accordance with sustainable social and environmental principles. For example, with respect to rural development, there remain significant risks that investors will acquire land at extremely low costs, compromise statutory and/or customary local rights, and neglect their social and environmental responsibilities. Thus, strong governance is critical to ensure that development happens transparently and equitably, as well as in a way that minimizes threats to the most critical areas of natural capital.

2.2 SMALLHOLDERS

Smallholders dominate agriculture production in Liberia and the DRC and represent 50 and 85 percent of palm oil production respectively (Carrere, 2013; Megevand et al., 2013).

In the context of oil palm, smallholders are defined by the RSPO as growing oil palm on a planted area of less than 50 hectares, sometimes with subsistence production of other crops, where the family provides the majority of the labor and the farm provides the principle source on income (RSPO, 2014). Smallholders may be independent producers or associated with a larger, nearby plantation. *Independent smallholders* are self-organized and self-financed groups that have the freedom to choose how they use their land and which crops to cultivate. They are not bound by any particular mill or association. However, independent smallholders may also face challenges due to a lack of access to technical assistance, credit, or even buyers for their palm oil. For this reason, yields may be lower for independent smallholders (Small, 2014). *Associated smallholders*, sometimes referred to as “outgrowers,” are defined as entities that are structurally bound by contract, credit agreement, or planning to a particular mill and often are not free to choose which crop to grow. In return, associated smallholders generally have access to technical support and a steady market for their products from the associated plantation company or mill (Small, 2014). In the context of the DRC, there are also small-scale artisanal producers who act more like gatherers than farmers (Smit, personal communication). The quality of palm oil smallholders produce tends to be poorer than plantation-grown palm oil, which may stem from a lack of investment in seeds and technology, a lack of training on best practices, and/or the longer time period between harvest and processing.

In Liberia, recent contracts between the government and plantation companies include provisions requiring associated smallholder schemes. Combined, all recent contracts could cover an area of up to 100,000 ha that associated smallholders manage (Small, 2014). However, the specific conditions of these associated smallholder schemes are yet to be determined and could range from written contracts guaranteeing sales to land agreements that provide communities with a share of profits based on the equity value of the land that has been rented to the plantation company. Currently, all concession contracts leave the impetus for outgrower development with the Government of Liberia, which may lead to slower progress than interested parties hoped for (Small, 2014).

In the DRC, the situation is different. Smallholders continue to harvest fresh fruit bunches (FFBs) from abandoned plantations in more of a gathering- than production-based activity (Smit, personal communication). It is unclear who owns these abandoned plantations, but communities do harvest the FFBs and process them into palm oil using artisanal, low-tech milling procedures. Should re-investment in the sector occur, similar outgrower and employment schemes will be necessary to improve the livelihoods of these producers.

In general, while smallholders dominate production, they often have little influence relative to other actors within the palm oil value chain. They also suffer a high level of uncertainty and high levels of poverty that make them quite vulnerable to shifts in price and market. Smallholders may clear land in hopes of realizing economic benefits through oil palm cultivation, but are often faced with low yields due to low-cost, low-quality seeds. Once planted, growers have incentives to continue harvesting despite low quality as replanting would mean another several years before cash flows resume. The unique

challenges facing smallholder producers will need to be considered and addressed in order to ensure adequate safeguards for forest areas.

2.3 PROCESSORS AND TRADERS

Processors and traders have somewhat less influence over sustainability within the palm oil sub-sector in Africa. However, they provide important opportunities for investment and development. Traditionally, women have played a key role in palm oil processing in both Liberia and the DRC (Carrere, 2013). In Liberia, women produce 60 percent of agricultural products and carry out 80 percent of trading activities in rural areas (IFAD, 2011). In many cases, they employ artisanal processing methods to extract palm oil for use domestically and in local markets.

By strengthening these female-owned businesses, companies will not only maintain traditional economic opportunities for women, but also support broader social and economic well-being in communities. Studies have shown that investments in women-run businesses can generate significant benefits for improved livelihoods and poverty alleviation (World Bank et al., 2008).

2.4 CONSUMER GOODS AND RETAIL COMPANIES

Within TFA2020, a group of consumer goods companies that includes Unilever and Nestlé have formed an Africa Working Group facilitated by ProForest. These companies are users within the palm oil value chain, and although their individual volumes are limited, together they can exert a high degree of influence among the large trading and plantation companies from whom they source palm oil and palm oil derivatives. However, given the complexities of the supply chain, they often have less influence over smallholder production, and there is a high level of uncertainty regarding the implementation of sourcing commitments related to smallholder rights and deforestation in the region.

2.5 FINANCIERS

The development of large-scale oil palm plantations is capital intensive, with no cash flows in the first three to five years (apart from sales of timber from cleared forests). Most new oil palm development depends on outside finance, either through commercial loans, investments from sovereign wealth funds, or assistance from multilateral development banks (Rainforest Foundation UK, 2013). Of the multilateral banks, the African Development Bank is actively financing palm oil investment in the region. Of particular note is its investment in the Maryland project in Liberia. The African Development Bank also has provided indirect investments to Feronia in the DRC as a limited partner investor in the African Agriculture Fund (AAF), which acquired a 20-percent equity share in Feronia in 2012 (Feronia, 2012). These financiers have the ability to affect where and how palm oil is developed in the region.

2.6 COMMITMENTS BY THE PRIVATE SECTOR TO SUSTAINABLE OIL PALM DEVELOPMENT IN LIBERIA AND THE DRC

Many of the large-scale private sector actors within Liberia and the DRC are members of the RPSO and have established either production or sourcing commitments related to the certification of sustainable palm oil under the RSPO Principles & Criteria (P&Cs). Within the past 12 months, several companies have announced additional commitments that specifically address issues of deforestation and smallholder integration. These commitments include conservation of High Conservation Value (HCV) and High Carbon Stock (HCS) forests. By definition, HCV areas contain biodiversity, socio-economic, ecological

and/or cultural values of outstanding significance and must be maintained under the RSPO P&Cs. HCS is an evolving methodology that seeks to determine a threshold for conservation areas through the categorization of forests based on the amount of carbon stored in one hectare³. The carbon threshold currently being piloted by Golden Agri-Resources (GAR) and Greenpeace is 35 metric tons (tonnes) carbon/hectare⁴ (Greenpeace International, 2014). RSPO also requires commitments to biodiversity conservation, as well as engagement with local stakeholders to obtain their free, prior, and informed consent (FPIC) based on the requirements outlined under Principle 2.2 of the P&Cs (RSPO, 2013) and guidance developed for RSPO members by the Forest Peoples Programme (FPP 2008).

Some of the commitments to forgo oil palm production on HCV and/or HCS forest lands were made in the wake of advocacy campaigns targeting practices in Indonesia and Malaysia and may need to be refined within the context of Africa. Applying these policies in the African context presents some challenges due to the different forest types in the region that have higher carbon values than those in Southeast Asia, where the policies and thresholds originated. In addition, there are questions of whether a zero-deforestation approach can work in Africa when balanced with the need for social and economic development in countries including Liberia and the DRC, which rank near the bottom of the UNDP Human Development Index – 175 and 186, respectively, out of 187 countries (United Nations Development Programme, 2014).

Nevertheless, there may be opportunities to implement private sector commitments to no-deforestation oil palm development in Liberia. Golden Veroleum's operations fall under GAR's Forest Conservation Policy, which applies to all operations in which GAR is an investor. In 2011, GAR was the first palm oil producer to announce a commitment to a "no deforestation" production footprint through its Forest Conservation Policy, which also established HCS pilots in three plantations (GAR, 2011). The company is releasing regular reports on the application of the HCS approach.

Also in Liberia, Sime Darby has established commitments to the integration of smallholders into sustainable supply chains through the company's convening and leadership of the Smallholder Acceleration and REDD+ Programme (SHARP) initiative, which brings together smallholders, private sector companies, governments, and civil society to support sustainable smallholder development. How these commitments will manifest is uncertain given the political, economic, and social context of the region.

2.7 REDD+ INITIATIVES AND EXPERIENCES

The extensive areas of forest in Liberia and the DRC make the two countries important priorities for REDD+ initiatives. Both countries are engaging in REDD+ Readiness activities but are at relatively early stages in implementing projects. Liberia has focused primarily on putting the right policies in place to facilitate REDD+ implementation. The DRC has moved forward with specific REDD+ projects aimed at carbon emissions reductions and financing rural development in forest landscapes.

³ The HCS Approach assesses only Above Ground Biomass (the biomass of trees ≥ 5 cm diameter) and does not assess Below Ground Biomass. Therefore, it significantly underestimates total biomass carbon (Greenpeace International, 2014).

⁴ The HCS Approach, as it has been applied in Indonesia pilots, prohibits clearing of high-density forest, medium-density forest, low-density forest, and old scrub for oil palm development. It allows for development of young scrub and cleared/open land.

2.7.1 Liberia

An assessment of REDD+ Readiness was conducted in Liberia as part of the World Bank Forest Carbon Partnership Facility (FCPF) using the Program on Forests (PROFOR) Tool to monitor and assess forest governance. The assessment found that while much of the legal, policy, and regulatory frameworks are (for the most part) sound, implementation and enforcement of laws and regulations are generally weak. This finding validates a similar conclusion from the Liberia Forest Diagnostic study (PROFOR, 2013). As part of the REDD+ Readiness grant, Liberia has made progress on their land use assessment, identification of drivers of land use change, and creating the policy enabling environment necessary for implementing REDD+ in the country. To implement REDD+ in Liberia, however, there is a need for the process to identify strategy options, assess social and environmental impacts, and ensure that adequate governance and safeguards are in place. Development of the REDD+ Strategy and Strategic Environmental and Social Assessment has been contracted using FCPF funds and both are underway, but the Ebola Virus Disease outbreak has necessitated rescheduling of the critical participatory and consultative aspects.

The forestry sector was a key focus of the REDD+ analysis and findings highlighted additional lessons that can be applied to oil palm cultivation. Liberia's 2006 National Forestry Reform Law (NFRL) and National Forest Strategy promote a "3 Cs" approach, giving equal balance to community, commercial, and conservation aspects of forestry (PROFOR, 2013). However, in its implementation, progress on community and conservation forests lagged behind the commercial forestry component. Additionally, as land was deemed suitable for each of the "3 Cs", large areas of land were identified as suitable for "mixed use" without a clear indication of how these areas would be managed (PROFOR, 2013).

A Strategic Environmental Assessment looking at implementation of the NFRL with regard to social and environmental objectives was launched in 2008. Findings of that assessment informed the Community Rights Law with respect to Forest Lands. This law was passed in 2009 to address these gaps around community forestry by providing greater clarity to the rights of communities related to ownership, use and management of forests, as well as conflict resolution (International Bank for Reconstruction and Development, 2010).

The REDD+ analysis also found that unresolved land tenure issues in Liberia are a specific area of concern. More than 1 million hectares have been allocated as forestry management concessions (FMC) and timber sales contracts (TSC) to be managed by the Forest Development Authority as areas of state-owned land. However, there is increasing awareness that large amounts of these areas may be subject to community claims based on customary ownership (PROFOR, 2013). In an effort to reconcile competing claims, the Liberian government's Land Commission approved a National Land Rights Policy in May 2013 to begin sorting out the complicated land tenure framework (FCPF, 2013).

2.7.2 The DRC

The government of the DRC has supported REDD+ since 2009 as a way of reducing poverty in the country. The DRC has a National REDD+ Strategy that recognizes the potential of palm oil to spur economic development and cause deforestation, especially in regions with strong transportation infrastructure like Bas-Congo and Kivu. The Ministry of Agriculture and Rural Development is working to develop an action plan for sustainable palm oil development. The strategy also notes the need for zoning, implementation of sustainable practices, and financing for local communities to ensure sustainable development of the palm oil sector (Government of the DRC). Since 2009, several organizations including the World Wildlife Fund (WWF) and Wildlife Works have developed REDD+ projects in the country.

The Mai-Ndombe project in western DRC covers 12 million hectares and will engage 300,000 households (WWF, 2012). According to a report it has the potential to generate over 60 million tonnes of carbon and generate \$70 million in financing (WWF, 2012). The project is grappling with deforestation in an area of high poverty where communities have little recourse but to exploit the forest for their livelihoods. Specific lessons learned from the project to date include the recognition that local communities need to be sensitized as part of their participation and that activities need to be recognized by the government to enable scaling (WWF, 2012).

3.0 BARRIERS TO ESTABLISHING A ZERO-DEFORESTATION PALM OIL SECTOR IN LIBERIA AND THE DRC

Sustainable palm oil production must address environmental, social, and economic issues associated with the sub-sector. In some cases the social and economic development issues may require prioritization of forest area for conservation in the region. To understand the ability of a country to effectively manage these tradeoffs, we must first look at the conditions in which the sector operates.

Key barriers to sustainable palm oil development in Liberia and the DRC follow:

1. Weak governance and policy environment
2. Lack of access to extension services and inputs to improve production on existing plantations and degraded lands
3. Lack of processing and transportation infrastructure
4. Poor socioeconomic conditions of local communities
5. Lack of necessary expertise and capacity to implement sustainability programs

These five key conditions offer a typology for assessing opportunities in the region and identifying priority interventions to create the necessary enabling environment for zero-deforestation oil palm development in Liberia and the DRC. These conditions may be barriers to or present opportunities for zero-deforestation development. In this section we present our analysis of how these conditions may present barriers to sustainable oil palm development in Liberia and the DRC.

3.1 WEAK GOVERNANCE AND POLICY ENVIRONMENT

The policy environment in Liberia and the DRC presents challenges for development of the palm oil sub-sector. Both countries are developing strategies to increase rural development via agriculture investment, and palm oil development offers an opportunity to provide employment, finance, and infrastructure – and to reinvigorate the agriculture sector. Both countries have a long history of palm oil production but face challenges in reinvigorating the sub-sector in the current post-conflict environment. The ability of the countries to develop and effectively implement policies that support sustainable development of the sector remains uncertain given the high levels of corruption and weak judicial systems in the region (Pirker and Mosnier, 2014).

3.1.1 Liberia

In the 1970s, the Government of Liberia embarked on a major oil palm development program, establishing 60,000 ha of government and private oil palm plantations. These consisted of state-owned industrial plantations in Grand Gedeh, Maryland, and Sinoe Counties and small- to medium-scale private plantations in Bong, Lofa, and Nimba Counties. The expected potential production from these plantings was an FFB potential of 750,000-900,000 tonnes, equivalent to 135,000-180,000 tonnes of crude palm oil (CPO). However, these plans were not realized due to the First Civil War in the 1980s (Fricke, 2010).

Liberia's total output in 2008 was around 183,000 tonnes of FFB, which equates to about 40,000 tonnes of crude palm oil (worth approximately US\$30 million at current world prices). In 2009, production in Liberia increased to 47,300 tonnes. However, this level of production is still not adequate to meet Liberia's domestic demand for palm oil. With annual consumption of approximately 62,800-66,200 tonnes, Liberia must import between 14,000 and 17,000 tonnes of palm oil each year – a figure equal to 20 percent of its total demand and representing a value of approximately US\$10.5-12.8 million (Fricke, 2010).

After more than a decade of protracted armed conflict, the Government of Liberia launched strategic policy initiatives aimed at poverty reduction and economic development, several of which included oil palm development. Liberia's "Food and Agriculture Policy and Strategy" called for increased production and productivity of the palm oil sub-sector, especially among smallholders, to facilitate a rapid increase in rural incomes, employment, export earnings, and public revenues. The strategy sought to enhance Liberia's preparedness as an exporter in the palm oil sub-sector based on its comparative advantage in production, strategic location, and the growing global demand for palm oil. Despite these efforts, Liberia is a net importer of palm oil; other countries supply over 20 percent of its consumption (Fricke, 2010).

Another initiative, the Lift Liberia Poverty Reduction Strategy (PRS), organized its objectives into four pillars – peace and security, governance and rule of law, infrastructure and basic services, and economic revitalization. Almost one-third of the deliverables in the economic revitalization pillar applied to the agriculture sector, with the goal of increasing exports and improving food supply for rural subsistence farmers. The agricultural deliverables of the PRS that are furthest off-track concern land records and titling, including the development of a records management system to expedite land titling. This lack of clarity around land tenure remains a significant barrier to equitable growth and improved production within the palm oil sub-sector (International Monetary Fund [IMF], 2012).

However, there are some encouraging results of the PRS related to job creation, with up to 93,000 new jobs created between 2008 and 2010. While projections indicate that approximately 80,000 jobs were related to the palm oil sub-sector, most of these are informal and thus effectively not subject to labor regulation or monitoring. In some cases, the job numbers are those projected as part of investment projects, not actual jobs already created (Fricke, 2010).

In addition to strategic policy initiatives, the Government of Liberia has signed natural resource contracts in an effort to utilize foreign direct investment in oil palm development to reinvigorate the economy and promote development. According to Balachandran (2012), these contracts encompass more than 45 percent of the country's land mass. For example, in a map presented by Golden Veroleum, the 240,000 ha of core and outgrower oil palm plantations will be established within a 500,000 ha gross interest area, which according to the company will exclude protected and potentially biodiverse zones (Fricke, 2010). However, the areas identified for plantation development appear to abut or even overlap with Liberia's only gazetted protected area, Sapo National Park. According to a report of the Government of Liberia and the United Nations Joint Plantation Task Force, most of the agricultural concession agreements, including the Golden Veroleum example, "are not in line with

Liberia's obligations in terms of national and international laws" and "do not reflect contemporary responsible business practices" (Siakor, 2012).

Compounding these concerns is the lack of government capacity to enforce legislation in the palm sector, particularly surrounding rural land tenure. Significant barriers exist around contradictory national land and natural resource policies, ambiguous legal frameworks, weak implementation, low professional capacity, corruption, and a lack of political will to ensure land tenure security for rural communities.

The Government of Liberia is also looking at existing incentive programs and other safeguards for forest conservation. One such initiative is the REDD+ Readiness program financed by the Forest Carbon Partnership Fund, administered by the World Bank. This ongoing project will seek to develop an integrated national strategy for REDD+. However, the same challenges related to capacity, concessions, and land tenure legislation that apply to sustainable development of oil palm will also apply to any national-level REDD+ initiative.

3.1.2 The DRC

In 1960 when the DRC gained its independence the country was exporting 160,000 tonnes of palm oil each year, a level of production that was second only to Malaysia. National production is currently estimated at around 300,000 tonnes per year, of which 50,000 is from industrial plantations, another 50,000 from village plantations, and the rest – 200,000 tonnes – from "la palmeraie naturelle" or "natural palm" growing in non-plantation indigenous forest (Chausse et al., 2012).

The DRC imports roughly 50,000 tonnes of palm oil each year in order to meet its total domestic demand – 350,000 tonnes per year which is projected to grow at a rate of approximately 5 percent per year. At this rate domestic demand will exceed a million tonnes by 2030. Meeting this demand locally would require around 160,000 hectares of additional plantations producing at least 20 tonnes FFB per hectare (Chausse et al., 2012).

The government is pursuing a policy geared to revitalize the agriculture sector and achieve a growth rate that exceeds population growth rates (Groupement AGRER-EARTH Gedif, n.d.). The focus of this strategy is to reduce poverty and improve food security in the country. The government sees oil palm development as an opportunity to reduce food imports and finance economic development. The government of the DRC has released 150,000 hectares of abandoned plantations for redevelopment and is encouraging new investments in these 25 abandoned plantations. Currently, secondary forest growth dominates these plantations. Rejuvenation of these plantations, therefore could contribute to deforestation of these secondary forests (Muhindo, personal communication).

Political stability increased during the past two years and is creating opportunities for re-investment in the oil palm sector. Several companies are negotiating with the government for plantations. The Chinese are especially interested, and ZTE (a Chinese energy and agribusiness company) recently expressed interest in developing 1 million hectares of palm oil for biofuels production, which if approved could lead to forest loss (Muhindo, personal communication). The DRC Agriculture Code, which passed in December 2011, prohibits foreign individuals or companies from owning farms in the country and may restrict agricultural investment. At least one company has claimed that their investments comply with this law since the plantations are leased concessions from the government, which retains ownership of the land (Rainforest Foundation UK, 2013).

The DRC has not issued a national interpretation of the RSPO standards to guide future investments and ensure their alignment with the RSPO principles. However, an assessment of high conservation value forests has been completed, which could facilitate the development of the national interpretation (WWF, 2012). Should these national frameworks develop, they will need to align at the subnational

level, as there have been some instances of local government agencies approving concession development and these being annulled by the national parliament (Nicolai, 2014). In addition, there are concerns about oil palm expanding into REDD+ project areas in Isangi and Jadora; both projects are bordered by abandoned plantations, and there is no regulation or plan in place to avoid palm oil expansion in these areas (Pirker and Mosnier, 2014).

3.2 LACK OF ACCESS TO EXTENSION AND INPUTS TO IMPROVE PRODUCTION ON EXISTING PLANTATIONS AND DEGRADED LANDS

Both Liberia and the DRC have extremely low average FFB yields. This level of FFB production is not enough to produce a sufficient amount of palm oil to meet current domestic demand. Actions needed to increase productivity on existing plantations and degraded land will require reinvestment in research and extension in both countries. In addition, nurseries are needed to provide adequate stocks of new, more productive oil palm varieties.

Even with high-yielding varieties, additional incentives and support structures may be needed to enable producers to consider cutting old trees and replanting, given the three to four year period before the new trees produce fruit. Smallholders will need alternative income sources during this period to enable them to take on this risk. Under current conditions, small growers may be forced to take on loans during this period. These loans usually come with harsh terms and high interest rates, which can prolong the time between planting and realizing profits.

3.2.1 Liberia

The Government of Liberia statistical survey reports yields in Liberia below three tonnes of FFB per hectare, less than 20 percent of the Indonesian and Malaysian averages (Fricke, 2010). One reason for these low yield figures is that small-scale producers in Liberia largely harvest from aging trees that average 30-35 years old, much older than their period of high production potential (Fricke, 2010). The typical productive tree life of oil palm trees in Malaysia and Indonesia is about 25 years before replanting. However, as noted previously, replanting oil palm plantations requires investment in production and planting of new seedlings as well as a maturation period of about three-to-five years before cash flow resumes.

In July 2009, the Government of Liberia granted Sime Darby concessions totaling 220,000 ha northwest of Monrovia for a period of 63 years. Under the concession agreement, Sime Darby will develop an additional 44,000 ha under an outgrowers' scheme (Sime Darby, 2014). Golden Veroleum entered into a concession agreement with the Government of Liberia for the development of oil palm plantations in Sinoe, Grand Kru, Maryland, Rivercess, and River Gee Counties in Southeastern Liberia. Golden Veroleum was granted the rights to a concession of 220,000 ha for oil palm plantation, with an additional 40,000 ha to be developed in collaboration with smallholders (GAR, 2010). Smallholders supported through these concessions may have greater access to extension services and inputs, but independent smallholders will still struggle to increase yields without financial support.

Before the Ebola Virus Disease (EVD) crisis erupted in the country, the private sector and international development agencies were poised to significantly scale-up investment in Liberia, and civil society was putting in the resources to help ensure that these developments were undertaken in a sustainable manner. Now donors are shifting resources for technical assistance to Cameroon, and additional financing opportunities will need to be identified.

3.2.2 The DRC

Average yields of the large plantations in the DRC are 10 tonnes of FFB per hectare, and village plantation yields are half of that amount (Chausse et al., 2012). Improvements in yields and extraction rates will require rejuvenation of plantations and reinvestment in processing infrastructure. For smallholders, the barriers to rejuvenation may lead to clearing of forest areas instead of redevelopment of the existing footprint due to high poverty rates and the inability to withstand the three-year cycle before the new plants become productive.

One study noted that the DRC research community no longer produces any seedlings and that the large plantation companies have to import seed stock and propagate it in their own nurseries (Chausse et al., 2012). Another found that almost no research is currently done on palm oil in the country, and the center for seed production at Binga closed in 1999 (Groupement AGRER – EARTH Gedif, n.d.).

3.3 LACK OF PROCESSING AND TRANSPORTATION INFRASTRUCTURE

Development of the palm oil sector at scale requires significant investment in mills and the ability to transport FFBs to market efficiently by road, rail, or ship within 24 hours to the mill. Both Liberia and the DRC lack some of this basic infrastructure. Some re-investment in this infrastructure is taking place in Liberia, whereas in the DRC there is tremendous need for significant re-investment in processing equipment as well as road improvements to produce export-quality palm oil.

3.3.1 Liberia

International plantation companies are actively investing in the development of the Liberian palm oil sub-sector. Four major international oil palm production companies, including two of the largest Malaysian and Indonesian companies, Sime Darby and GAR (through its investments in Golden Veroleum), have finalized concession permits for the development of more than 500,000 ha. Equatorial Palm Oil and Socfin/Cavalla also have invested heavily in plantation areas (Greenpeace, 2012). Sime Darby, GAR, and Socfin are three of the most financially and technically strong oil palm companies in the world, with extensive holdings, infrastructure, and research and development capabilities.

However, to have an economically viable palm oil sector, these companies will need to greatly increase processing capacity in Liberia and make it more efficient. For example, to achieve scale, one major producer said their operations would need to establish at least two 80-tonne processing mills, each serving approximately 50,000 ha of plantation area, to achieve profitable processing volumes. Insufficient processing capacity and the resulting low palm oil volumes present challenges to Liberian processors looking for access to international markets. Equatorial Palm Oil operates the only mill in Liberia currently supplying international markets, with exports of just 1,000 tonnes of palm oil in 2012 (Small, 2014).

Additionally, mill inefficiencies and outdated technology in existing processing facilities contribute to lower extraction rates for crude palm oil (CPO) from FFBs, thus further limiting current palm oil yields. Extraction rates of current processing facilities in Liberia are low, even on industrial plantations. Equatorial Palm Oil operates a 5-tonne mill and reports extraction rates exceeding 18 percent (Equatorial Palm Oil, 2012), compared to 22-25 percent extraction rates in Indonesia and Malaysia.

The majority of smallholders, as mentioned previously, are independent smallholders with relatively low production levels. Equatorial Palm Oil has purchased small quantities of FFB from smallholders (without contract), and plantation concessions include requirements for outgrower schemes; however, currently at the national level there is no significant collaboration between smallholders and processing companies.

Another important distinction with regard to smallholders and their access to international markets is the type of oil palm tree cultivated in Liberia. There are two main varieties of oil palm. The first is the tenera variety, which is the commercialized tree type grown in Indonesia and Malaysia with a thicker mesocarp and smaller kernel that produces more oil from each FFB. To maintain quality, FFB from tenera oil palm must be processed in 12-24 hours, with the shorter time between harvest and processing producing the highest-quality oil. The second is the dura variety, which is the most common oil palm tree type on smallholder plantations in Liberia. Domestic markets favor Dura for its rich red color and its ability to maintain adequate quality for longer periods of time between harvest and processing. Large-scale plantations and their associated processing facilities will only plant and process tenera oil palm.

3.3.2 The DRC

In the DRC the markets for palm oil are significantly underdeveloped. Local transportation infrastructure and the deteriorating state of the mills and plantations serve as major barriers to reinvestment in the palm oil sector. Extraction rates at processing operations are also low due lack of investment in processing infrastructure – 15 percent for industrial mills and less than 10 percent for the artisanal sector, which employs manual presses. Extraction rates in Indonesia and Malaysia are typically around 22-25 percent at industrial plantations. In Cameroon, artisanal processes have achieved extraction rates of up to 15 percent (Nchanji, 2013).

That said, some international companies are beginning to look at the DRC for oil palm development. The main actors have taken over abandoned plantations and are investing in their rehabilitation. These plantations are at the end of their productive cycle and need replanting (Chausse et al., 2012). Thus, although there is significant land suitable for palm oil in the country, the lack of infrastructure and political stability have stagnated any significant investment in palm oil in the region.

Feronia, a Canadian company, has taken over management of the former Unilever Plantations. Known locally as Plantations et Huileries du Congo (PHC), the company manages three plantations – Boteka and Yaligimba in Equateur Province and Lokutu in Province Orientale (Maquet, 2013). Feronia is investing in the rehabilitation of these plantations with international financing. The company manages a concession of 107,892 hectares, of which 15,000 are under production and another 45,000 are available for development. The company has made a commitment to only develop those areas that were previously under palm oil production and to conserve the remaining forested area (Jeune Afrique, 2012). A recent study found that the plantation in Boteka overlaps with a forest concession and is surrounded by primary forests; it questioned the legality of the holding (Botrill et al., 2014).

Other major actors in the DRC are Groupe Blattner Elwyn (GBE) and SOFINA. GBE manages five sites in Orientale and Equateur provinces. SOFINA is a Luxembourg-based company that is investing in Bandundu, Bas-Congo, and Katanga.

Most palm oil produced in the country is consumed locally as cooking oil or processed into soap. A small amount is transformed into biofuel. A few buying centers for artisanal oil support the soap value chain. Only a small amount is exported in any particular year and goes to other countries in Central Africa (Rainforest Foundation UK, 2013). Significant increases in exports of palm oil from the DRC are unlikely before 2020 (Rainforest Foundation UK, 2013).

3.4 POOR SOCIOECONOMIC CONDITIONS OF LOCAL COMMUNITIES

Lack of clarity of land tenure and resource rights presents a significant challenge for oil palm development in both Liberia and the DRC. While the contexts differ, the potential for plantation

companies to run into land-related grievances is high in both countries. In Liberia the government allocates concessions to companies with the understanding that the companies will engage with communities and sign conservation agreements with them to gain access to the lands. In the DRC, allocation of abandoned plantations for development has the potential to negatively impact local communities that have traditionally gathered FFBs from the plantation as a supplemental source of cooking oil and income. Sustainable development of the palm oil sub-sector in both countries will depend on the ability of companies to negotiate effectively with the communities currently using and surrounding the plantation area.

Hazardous and exploitative working conditions are also significant issues within the oil palm sector. While there is little research available on working conditions on plantations in Liberia or the DRC, in more developed plantation economies in Indonesia and Malaysia, labor conditions are particularly harsh for women. Oil palm plantations typically employ women in low-paying, menial jobs, such as collecting loose fruit, maintaining trees, and spraying herbicides and pesticides. Protective gear is not routinely given (usually long sleeves and a towel or shirt to cover their face), and the women are seldom informed about the risks of the hazardous chemicals (Thanda, 2014). Employment of women on plantations can also lead to child labor, as many oil palm plantations are remote and far from schools (Thanda, 2014).

3.4.1 Liberia

While land tenure has been noted at several points within this paper, the challenges presented by these issues in Liberia and their importance to the development of a sustainable palm oil sector cannot be overstated. Despite government support for the identification of traditional land tenure and protection for smallholder and traditional people's rights, lingering disputes persist, stemming from land seizures and occupations of company facilities both during and after the conflict. Additionally, the current compensation system, which accounts only for lost crops (not lost lands), is unfair and inadequate. Land lost to plantations should be properly valued and compensated in a way that enables those who lost land to find replacement land and continue normal livelihood activities (Fricke, 2010). Additionally, communities may not realize or adequately account for the benefits they receive from forests in the form of ecosystem services such as food security, medicine, fresh water, etc.

These issues have manifested in grievances on behalf of communities that have lost their lands or were inadequately compensated. Communities in Garwula filed one complaint in 2011 alleging that Sime Darby "engaged in active land clearing, destruction of sacred sites, destruction of crops, damming of creeks and streams, filling in of our swamps, destruction of grave sites, destruction and pollution of our drinking water sources, forceful displacement of our people without adequate compensation, active planting and cultivation of oil palm including the massive establishment of an oil palm nursery without our free, prior, informed consent." (Siakor, 2012)

As a result, organized opposition groups are calling for explicit policies requiring stakeholder engagement processes that follow the FPIC guidelines. FPIC requires that communities be informed in advance of plantation activities commencing and that those communications and negotiations be conferred in a way that is understandable.

Oil palm development also has the opportunity to provide employment to local communities. According to a 2008 statistical survey by the Government of Liberia, oil palm production provides direct employment and income impacts to approximately 37,000 families, or an estimated 250,000 individuals – about 75 percent of whom are from Lofa, Nimba, and Bong Counties, where early investment efforts occurred (Fricke, 2010). As employment opportunities develop, it will be important to monitor working conditions to ensure the health and safety of growers and plantation workers, particularly women and children.

3.4.2 The DRC

The socioeconomic nexus of extreme food insecurity, high poverty rates, and lack of development alternatives make communities highly dependent on forests—including abandoned palm oil plantations—for their livelihoods. Local communities regularly gather fresh fruit bunches from abandoned palm plantations for household consumption and for sale in the marketplace (Smit, personal communication). Investment that stimulates rejuvenation of these plantations and allocates them to plantation companies could negatively affect local communities that traditionally have managed these lands. These impacts could lead to lost income from oil palm gathering in the abandoned plantations and even displacement or relocation of communities. Investors in the palm oil sector in the DRC will have to effectively address and compensate for any lost production from redevelopment of these abandoned plantations (Muhindo, personal communication).

Within the DRC, the government recognizes customary possession and requires investors to engage in processes that ensure consultation with indigenous peoples and local communities. It requires compensation of any customary use rights lost (Rainforest Foundation UK, 2013). In addition to community engagement, plantation companies will also need to protect the rights of indigenous aboriginal populations who traditionally provide day labor within the palm oil sector (Balde and Lutuyu, 2009).

3.5 LACK OF NECESSARY EXPERTISE AND CAPACITY TO IMPLEMENT SUSTAINABILITY PROGRAMS

Both countries suffer from a lack of local capacity to implement sustainable development strategies for the sector, due in part to the lengthy violent conflicts in both countries and the time it takes to rebuild the human capacity necessary for staffing government agencies, NGOs, and plantation and processing companies.

3.5.1 Liberia

There is a general gap in capacity among Government of Liberia agencies and other local stakeholders. The country is still rebuilding after approximately 14 years of civil conflict, which devastated infrastructure and severely disrupted education systems. Many trained staff were killed or fled overseas and have been slow to return to Liberia. The country remains classed as low income, and despite steady economic growth over the past 10 years, government budgets are constrained and very limited compared to the scale of required investment (PROFOR, 2013).

To address these capacity issues, several organizations organized the RSPO Road Show, which provided training and mentoring to enable implementation of the HCV approach among key stakeholders in Liberia and other select countries in West Africa and the Congo Basin. The goal was to build capacity for HCV practitioners and equip them with practical fieldwork experience to conduct HCV assessments for compliance with RSPO requirements. However, lack of awareness of the RSPO principles and requirements limited the success of the training (Proforest, 2013).

3.5.2 The DRC

The DRC faces similar capacity constraints to Liberia's. In addition to lack of human capacity, agriculture extension and research services have been underfunded for some time. The Institut National pour l'Etude et la Recherche Agronomique (INERA), the agriculture research arm of the government, has limited activities focused on emergency projects and those that can be implemented in partnership with

other research organizations. An assessment of the capacity of the government extension and research program found that the research stations have been pillaged, and none have received funding in the past 10 years. Although INERA employs more than 3,100 personnel, only 390 are researchers, and there are no employees with a doctorate level of education (World Bank, 2011).

The same World Bank study also found that within the Ministry of Agriculture, Livestock and Fisheries, there are few staff with technical knowledge able to provide services to the sector. There was an overabundance of administrative staff and many staff past retirement age (World Bank, 2011).

4.0 OPPORTUNITIES TO OVERCOME BARRIERS AND CREATE INCENTIVES FOR ZERO-DEFORESTATION SOURCING OF PALM OIL

The barriers to sustainable zero-deforestation palm oil development in Liberia and the DRC are formidable. The right investment strategies, however, could set in motion necessary steps toward the goal of zero deforestation in the palm oil sector, although it is not certain that this goal is achievable in the context of these two highly impoverished, densely forested countries. The governments of both countries recognize that investments in palm oil development could finance much-needed economic development and provide the infrastructure, employment opportunities, tax revenue, and social services necessary for development. However, this development could come at the price of the vast areas of primary forest that remain in both countries. REDD+ presents some opportunities to finance forest conservation, but carbon prices cannot compete with the economic returns from palm oil and other cash crops.

Sustainable development of the palm oil sector in this context must encompass a holistic approach that enables economic development while maintaining forested areas. This approach will require a combination of effective policies and governance, renewed investment in extension services and research, improved market infrastructure and production efficiencies, safeguards that protect the rights of indigenous peoples and local communities, and the development of a cadre of Liberian and Congolese professionals to implement the necessary sustainability strategies and investments. Of these investments in extension, processing infrastructure and social and environmental safeguards will have the highest costs. Policy development and capacity building are lower-cost opportunities that could also result in significant benefits to the sector. This section identifies the most promising opportunities for developing a sustainable palm oil sector in Liberia and the DRC. It assesses those opportunities within the policy context and willingness to implement, the possible impacts of each recommendation, and the potential risks and barriers to success. Detailed country-specific analysis of each opportunity can be found in Annex 3.

4.1 PROMOTE EFFECTIVE POLICIES AND IMPROVED GOVERNANCE

An effective policy environment and strong governance are essential for sustainable oil palm development. Without adequate policies to incentivize and support sustainable oil palm development—and in the absence of effective governance and enforcement—the efforts of even the best-intentioned public and private sector actors will be undermined. Given the early stage of oil palm development in

Liberia and the DRC, effective policies are crucial to guide where investments take place, as well as the environmental and social expectations of plantation companies. Thus, policy priorities should include: a strategic development plan for oil palm development that includes land use planning, dedicated investments in enforcement capacity, and greater transparency in oil palm development – particularly around concessioning practices.

Strategic development plans should be established for each country based on effective land use planning procedures and processes to identify those lands most suitable for oil palm development, where the necessary transportation infrastructure facilitates processing, while weighing the social and environmental risks and opportunities associated with these areas. The plans could include payment for ecosystem service programs and REDD+ initiatives that provide necessary incentives for forest conservation. There is tremendous opportunity (though little local capacity) to implement a holistic development strategy for the sector that recognizes the role of smallholders in the region and invests in their future. This goal would require an approach similar to that undertaken in Thailand, where to expand rice production the government engaged smallholders in a massive land-titling program; provided government support for research, extension, and credit; supported producer organizations; and provided necessary investment in road and rail infrastructure development (Megevand et al., 2013). A similar approach in the DRC and Liberia could spur expansion of the sector as well as the ability to meet domestic demand for palm oil and develop the potential for export.

In Liberia, there are already efforts underway to develop such a strategy. The National Interpretation of the RSPO Principles and Criteria has provided a vehicle to begin discussions among key stakeholders as to how oil palm can be developed and expanded while taking environmentally and socially responsible practices into account (RSPO Liberia, 2014). In addition a Sustainable Palm Oil Working Group, comprised of local RSPO members, has been established and should create a national-level working group with the support and active participation of government in order to begin aligning policy measures with market-based guidelines and requirements (Fricke, 2010).

The creation of country-specific strategies through multi-stakeholder processes under the auspices of TFA2020 is also bringing together private sector and government stakeholders in Liberia, one of the identified West African focal countries within the TFA2020 “signature initiative” on palm oil in Africa (TFA2020). Additionally, the governments of Liberia and Norway signed a bilateral agreement through which Norway will provide \$150 million in direct aid benefits to Liberia in exchange for the protection of forested areas. Under the terms of this agreement, Liberia would commit to protecting 30 percent of its forest area by 2020 and would issue no new logging concessions until an independent third party reviews existing concessions. Funding from Norway would support efforts to improve and strengthen governance, law enforcement, and community forest management in Liberia (Government of Norway, 2014).

In the DRC, where a National Interpretation of RSPO Principles & Criteria has not yet been undertaken, there is a clear need to undergo this process to enable implementation of the RSPO P&Cs in the DRC and to provide a framework to guide future investments in sustainable oil palm development within the country. There is a clear need to reconcile potential conflicts between oil palm development and protected forest areas. In the DRC, some studies have identified the potential for oil palm to expand into areas designated for REDD+ initiatives. Within the DRC there is also tremendous potential for developing oil palm on abandoned plantation areas and degraded lands – especially in Bas-Congo, where there is already a mill and port with the potential to export to European refineries (Smit, personal communication).

To ensure that these strategies and policies are effective, the governments also need to close the gap between implementation and enforcement. Even with a national land use plan in place, a dedicated effort needs to be made to enforce these policies and prevent illegal deforestation and oil palm development.

The best land use plans and policy intentions for limiting deforestation associated with oil palm development will not be successful if they cannot be adequately enforced. This is a clear lesson seen in other, more developed oil palm production areas like Indonesia, where the Forestry Minister recently announced that permits are lacking for 2 million hectares—half of all oil palm plantations—in Riau Province.

To support the implementation and enforcement, governments should define a clear process that outlines how concessions are awarded, including consideration of all social and environmental risks and making concession information publicly available. Transparency will help to facilitate community engagement. Making concession information publicly available will also allow for better monitoring of legal and illegal oil palm development, as well as enhanced accountability, particularly around deforestation where new tools like the Global Forest Watch Commodities platform are incorporating oil palm concession data in an open-access format.

Governments can leverage existing policy interventions and implementation frameworks developed for the forestry sector to support the development of a balanced, legal, and traceable palm oil sector. One example of this work is the European Union's (EU's) Forest Law Enforcement, Governance and Trade (FLEGT) program, which aims to reduce the trade of illegal timber. In return for voluntary but legally binding commitments to address illegal logging, timber-producing countries can receive financial and technical support from the EU to improve governance, policy reform, and transparency (Megevand et al., 2013). Both Liberia and the DRC are Voluntary Partnership Agreement (VPA) countries under FLEGT. The DRC is currently negotiating its VPA, while Liberia's VPA is already under implementation. In Liberia, a chain of custody tracking system called LiberFor is being implemented for timber as part of Liberia's FLEGT Voluntary Partnership Agreement Process (PROFOR, 2013). This process will be significantly more difficult for oil palm given the supply chain complexity and mixing of oils from different sources. However, given Liberia's lack of refining capacity, the sector may not have to deal with the traceability complications that come from processing oil into complex fractions and derivatives.

Companies also have a role to play by supporting policies aimed at sustainable oil palm development, actively engaging in multi-stakeholder initiatives such as the TFA2020 and making voluntary commitments to sustainability such as RSPO certification. Corporate policies should align with the RSPO Principles and Criteria and with the National Interpretations where these have been undertaken. These policies should also include community engagement plans and processes that ensure the rights of local communities and indigenous peoples are respected. All corporate policies related to social and environmental sustainability of palm oil investments should be transparent and publicly available on company websites. These plans should clearly outline the company's policies on land acquisition and plantation development, specifically demonstrating how communities and private landowners will be engaged and how their permission will be sought. If there is a land transaction, it is critical that financial and other terms are clearly and explicitly explained to communities during negotiations in a manner that communities are able to easily understand.

Where companies have committed to zero deforestation, conservation of high carbon stocks, and implementation of FPIC, these policies can undergo a third-party audit to assure compliance. This step is becoming increasingly important in the palm oil market as consumer goods companies commit to sourcing deforestation-free palm oil and look for assurance that the companies they source from comply with these policies. Rainforest Alliance is developing a verification tool to accompany policies of a few timber and palm oil companies, which could be applied more broadly to the sector to provide this level of social and environmental assurance (Donovan, personal communication).

There are also opportunities to go beyond individual corporate commitments to apply principles and practices of sustainable oil palm development at a landscape level. The Government of Liberia could

provide guidance and policy support for such an approach, and international development funding could provide financial support.

The feasibility and impacts of implementing the above policy and governance recommendations vary by country and recommendation. In Liberia, there are positive signs that there is high degree of willingness on the part of public and private sector stakeholders to incorporate sustainability in oil palm development. There are policy initiatives aimed at sustainable commodity development underway, including the National Interpretation of the RSPO P&Cs and the Voluntary Partnership Agreements under FLEGT. There are also multi-stakeholder efforts to support capacity building and policy objectives through the Sustainable Palm Oil Working Group, the RSPO Road Show, and TFA2020 Africa initiatives. There has been much progress in this area, but there are still significant capacity needs related to both policy and governance in Liberia. In the DRC, these needs are even higher. Government and corporate stakeholders in the DRC must begin to define their national plan for oil palm development.

The potential impacts of implementation of these recommendations are clearly high for both countries. If a policy framework for sustainable oil palm development can be established based on a thorough land use planning exercise and transparent processes, the potential social and environmental impacts will be far-reaching. Oil palm can provide employment opportunities for plantation workers, improved income and livelihood for smallholders, private sector support for physical infrastructure, and a potential revenue stream for government. Women, children, and indigenous people could benefit from stronger, more transparent government policies related to labor rights and land tenure.

The main barrier to the successful implementation of the policy and governance recommendations in Liberia and the DRC remains low capacity. While capacity-building efforts are underway, additional factors such as the Ebola Virus Disease in Liberia as well as safety and conflict issues in the DRC influence the potential for successful implementation and enforcement of policy. Corruption also contributes to policy barriers and poses obvious challenges to transparency efforts.

4.2 MAKE RENEWED INVESTMENT IN EXTENSION SERVICES AND RESEARCH TO IMPROVE PALM OIL PRODUCTIVITY

Increasing production efficiency of current palm oil plantations will require replanting with new varieties. To enable this shift, a significant investment in technical assistance and nursery development is required to introduce improved varieties for both plantations and smallholder producers, which will require capital investments that will only be possible through improved financial services for smallholders.

One focus could be to strengthen the capacity of financial institutions to deliver a range of services to a large number of commercial growers, smallholders, and agribusiness, thereby stimulating the necessary rejuvenation activities at multiple scales. These services would most likely be delivered via larger investments from multilateral development banks, but could potentially also include smaller-scale, local investments from regional banks.

This work could be financed through investments by donors from the public and/or private sector. An example would be the creation of a fund to provide low-interest loans to growers to support the financial investments required for replanting with higher-yielding seeds and to cover the period of time during replanting and maturation of trees. Growers would benefit from increased income from higher yields and lower interest rates on repayment, the private sector would benefit from higher volumes of palm oil production, and increasing yields of the existing oil palm operations could enable Liberia and the DRC to meet domestic demand while limiting encroachment into forest areas.

Another potential financing mechanism could be through national governments, as pending oil palm developments could make substantial contributions to tax revenues. The government could earmark a

portion of tax revenues or create a special levy to set up an oil palm development fund to benefit smallholders and local communities and promote sustainable production. However, such a fund needs to be managed professionally and independently with high standards of transparency and accountability (Fricke, 2010).

There is also some potential for large plantation companies to finance extension and support services for smallholder producers. In Liberia, large plantation companies responsible for supporting smallholders may provide the bulk of the needed extension and support services – i.e., nurseries, higher-yielding seeds, fertilizer, and other inputs. The concession agreements for Golden Veroleum and Sime Darby require the companies to develop a combined 84,000 ha of outgrower plantation area (GAR, 2010; Sime Darby, 2014). However, additional support services will be needed for independent smallholders and those harvesting palm oil from wild fruit. Investments in these services could lead to significant increases in productivity from about 2-3 tonnes FFB per hectare to 6-8 tonnes FFB per hectare. If yields at this level could be achieved, Liberia could be among the top-five producers globally, after Indonesia, Malaysia, Thailand, and Nigeria. As it stands, Liberia rates near the bottom of producer countries by volume (Fricke, 2010).

Additionally, pilot projects or demonstration plots can be established to prove the effectiveness of good agricultural practices—such as proper planting and spacing techniques, composting, fertilizer management, and soil management—on improving production. These pilots can also serve as outreach vehicles to raise awareness of sustainability practices among local community members. One example is the SNV project in the DRC, which supports artisanal palm oil production and processing as part of a zero-deforestation strategy. More specifically, the program provides services for increasing palm oil production while also increasing the value of the forest by investing in non-timber forest products and their processing as well as improved access to markets, and by promoting sustainable forest management (Smit, personal communication).

The lack of funds in the DRC to maintain research stations and provide extension services to smallholder producers is especially problematic given that smallholders represent about 85 percent of the country's oil palm production. Without investment in government research and extension programs like INERA and MAPE, the potential to increase smallholder productivity is quite low. The specific interventions needed from these programs may include training on best management practices, including nurseries and advanced seedling material, streamlining harvesting techniques, and optimizing fertilizer and nutrient cycling. Additional research is needed to develop improved milling technology that supports artisanal production but increases extraction rates.

The feasibility and impacts of implementing the above recommendations vary by country. In Liberia, there is a high level of investment in oil palm development. While the costs associated with delivery of extension services and research remains particularly high, there is interest and investment in improved yield and smallholder training on the part of plantation companies and civil society organizations. Private sector companies have pledged funding for rejuvenation of plantations in the region. For example, Sime Darby has committed 70 million Malaysian ringgit (approximately US\$20 million) to Liberia, some of which will support smallholder outreach programs like SHARP.

In Liberia concessions include specific areas to develop outgrower schemes to support small growers, which could be structured and supported in a way that maximizes yields. The DRC could adopt a similar model; however, the current level of investment is much lower, and there are fewer stakeholders operating in the country.

The potential impacts of implementation of these recommendations could be high for forests if the appropriate safeguards are put in place. Higher productivity could lead to increased household income

for growers. There are additional small-scale income opportunities for women through the expansion of artisanal processing and the trade of red palm oil and related products.

With yield improvements come additional financial resources that can create greater incentives to expand production areas, as well as additional capital for more efficient expansion. Should investments in rejuvenation and technical assistance succeed in increasing productivity in Liberia and the DRC, the resulting economic growth could lead to further conversion of forested areas to palm oil as increased incomes may make expansion more attractive to growers. For this reason, conservation incentives and safeguards must be a critical component of any investments aimed at yield improvements.

4.3 IMPROVE MARKET INFRASTRUCTURE AND PROCESSING EFFICIENCIES

Both countries present significant opportunities to increase palm oil production through processing and infrastructure improvements. Extraction rates in both countries are below optimal, but mill efficiency in the DRC is particularly low and has been described as “archaic”.

There is a need for additional milling capacity in both countries as well as the retooling of the existing mills to increase oil extraction rates. Both steps will require capital investments that will only be possible through improved financial services for processors. International donors and financing agencies such as the United States Agency for International Development (USAID), the International Finance Corporation (IFC), and the World Bank could redirect their funding from balance of payments subsidies toward investments in productive infrastructure and human resource development. This work would require significant funding both to increase capacity by developing new, higher-volume mills, as well as retrofitting old mills to increase efficiencies. A World Bank-funded project in 1985 aimed at increasing mill capacity in Malaysia to support smallholder production totaled US\$31.2 million for the construction of seven mills with a total processing capacity of 321 tonnes FFB per hour (World Bank, 1985). Adjusting only for inflation, this investment would cost about US\$68.5 million in 2014.

Any investment in palm oil processing should give attention to the artisanal processing infrastructure already in place in the country and often managed by women. An assessment of opportunities to scale up this infrastructure in support of the domestic and export market should be undertaken to ensure that future capital investments in large-scale processing do not undermine opportunities for growth in artisanal processing and traditional markets.

The feasibility and impacts of implementing the above recommendations vary by country and recommendation. In Liberia, the private sector is currently struggling to scale operations due, in part, to a combination of both low yields and low extraction rates. If investments in productivity improvements are realized at the grower level, companies will have greater incentive to invest in additional and/or improved processing capacity. In the DRC, the lack of private sector investment makes this additional investment much more difficult.

The need for low-interest financing options with appropriate social and environmental performance standards could provide incentives for making investments in processing infrastructure. The World Bank or the IFC, as well as the African Development Bank, could be potential sources for this type of project finance mechanism.

The potential impacts of implementation of these recommendations will contribute to greater overall productivity of the palm oil sector in Liberia and the DRC. Increases in extraction rates would produce more palm oil on the same amount of land. When compounded with yield improvements, this increase could have important benefits for forest conservation efforts as long as appropriate safeguards are in place.

The main barrier to the successful implementation of the recommendations is the fact that companies will likely hesitate to increase or improve capacity until production levels reach a sufficient volume and quality to incentivize the investment in new processing facilities. Beyond processing efficiency, dedicated efforts will need to be made to incorporate women into large-scale processing operations, which can be difficult in practice. Commercial processing is typically run and managed by the private sector, where women are marginalized and excluded from decision-making.

4.4 IMPLEMENT VOLUNTARY SOCIAL AND ENVIRONMENTAL SAFEGUARDS THAT PROTECT FORESTS AND THE RIGHTS OF INDIGENOUS PEOPLES AND LOCAL COMMUNITIES

The allocation of land concessions for palm oil development has the potential to significantly affect the livelihoods of indigenous people and local communities that have had traditional use rights to these lands. Reinvestment in the palm oil sector could also drive forest conversion as producers and governments look for economic development opportunities for these low-income countries. In Liberia the government allocates concessions to companies with the understanding that the companies will adhere to forest conservation legislation, engage with communities, and sign conservation agreements with them to gain access to the lands. This process is leading to social conflict between communities and the plantation companies and to the need for clear policies and effective practices for engaging these communities in a positive, participatory manner.

In the DRC plantation companies will need to compensate local communities if plantation development impedes their continued access to land and plantation resources that have traditionally provided a source of food and income. Many communities gather FFBs from old, abandoned plantations as a source of cooking oil and income. Loss of access to these resources could significantly impact the livelihoods of these highly impoverished communities. It could also drive clearing of forest areas to compensate for lost economic opportunities. Companies will need to ensure that plantation development offers employment and development opportunities to these communities, that the community agrees to any displacement or relocation, and that these changes result in an improved economic status. They may also need to provide incentives for forest conservation. Companies implementing these programs should adhere to the New Planting Procedures of the RSPO to ensure compliance with high social and environmental standards.

Companies must also respect the rights of communities and indigenous peoples employed on oil palm plantations, specifically with regard to child and bonded labor. Worker health and safety is also an important issue for women and indigenous peoples, such as the aboriginal peoples who provide day labor to the oil palm sector. There is also a clear need for an equitable approach to women's continued participation in the palm oil sector. Traditionally women have played a key role in palm oil processing; as the sector develops and expands, there is a need for safeguards that enable women to continue playing a key role in this part of the value chain. These safeguards could include specific considerations and requirements that all of the private sector respect internationally accepted worker health and safety standards and that stakeholder engagement processes include women representatives who can speak to the impacts of development on other traditional livelihood activities.

Three smallholder outreach projects—SHARP, the Smallholder Oil Palm Support (SHOPS) program, and the Small Tree Crops Project—seek to support sustainable smallholder development and improve livelihoods, yet each has encountered challenges in implementation. The SHOPS project has identified opportunities to better engage women in the initiative, which could inform other initiatives in the region. These opportunities include use of women's networks to increase awareness of processing equipment and palm oil production among women growers, to establish strong women's groups as

vendors and nursery operators, and to develop equipment lease financing models to purchase improved seeds.

Voluntary environmental and social safeguards in the form of community conservation agreements are highly feasible in these countries. In Liberia, conservation agreements are already being implemented between communities and the oil and gas sector. These conservation agreements could provide important safeguards to ensure that the provision of development benefits to local communities and smallholders is linked with incentives for forest conservation.

Implementation of market-based safeguards via RSPO standards and REDD+ projects are likely to prove more difficult given the scientific rigor required for implementation and the general lack of local capacity. Implementation of RSPO standards and REDD+ programs would need to proactively engage women and aboriginal peoples who could otherwise be marginalized due to the knowledge, access, and resource requirements necessary for successfully engaging in these programs. While these safeguards do not address zero deforestation palm oil production directly, they are critical to guarantee that palm oil is developed in a manner that ensures co-benefits and avoids harm. The impacts of these programs could be significant in terms of the generated environmental and social benefits.

4.5 CREATE LOCAL CAPACITY TO ENABLE IMPLEMENTATION OF SUSTAINABLE PALM OIL DEVELOPMENT

Both countries face significant human capacity gaps that affect the ability of the sector to develop and implement effective strategies for sustainable, zero-deforestation palm oil. These gaps affect the ability to implement the necessary programs to improve production in the region. For instance, USAID and other donors recently discontinued the Small Tree Crops Project in Liberia in part due to weak project management at the national level and to a need for greater capacity within the Ministry of Agriculture to ensure the sustainability of the program (Small, 2014).

There is a clear need for land use planning to guide allocation of concessions, which requires a high level of expertise in socioeconomic, environmental, and agriculture productivity assessment processes. In addition, implementation of REDD+ and payment for ecosystem service programs that could provide necessary incentives for forest conservation require a high degree of technical capacity for implementation. In Liberia, the RSPO Road Show is beginning to address some capacity constraints, but to date has focused largely on skills and trainings for HCV assessment and conservation. There may be opportunities to use the stakeholder network to develop additional skills aimed at strengthening monitoring, enforcement, and governance in Liberia (Proforest, 2013).

As the sector develops and palm oil exports begin flowing from the region to Europe and other markets, there will be a clear need for additional auditing capacity in the region. Currently any advisory or verification needs are being met through international and expatriate advisors, but local capacity will be critical to ensuring the long-term success of sustainable oil palm production in the African context. Should the African palm oil sector follow a similar trajectory to other producer countries, companies will need auditors that can verify compliance with the RSPO Principles and Criteria, as well as any forest conservation policies such as HCV and HCS. In addition, companies will need assistance in undertaking HCV and HCS assessments to identify areas of particular conservation importance that should be set aside from development. Once identified, companies and communities will also require support to develop mechanisms that ensure the long-term management of HCV and HCS conservation set-asides and prevent mismanagement.

Likewise, companies will also need experts who can guide them in implementing FPIC processes to ensure social best practices and that safeguards are implemented as part of land acquisition processes. To enable program implementation, there is a need to develop training and certificate programs that

build on existing local capacity in environmental and social issues related to palm oil development. Attention should be given to ensuring that women are represented in all capacity building activities.

Finally, there is a need for partnerships and collaborations with international research centers (e.g., among members of the Consultative Group on International Agricultural Research [CGIAR], whose objective is to progressively strengthen national capacities) to address capacity gaps in agriculture research and development in the region (Megevand et al., 2013). These partnerships could train a new generation of experts that will guide the development of the palm oil sector.

Capacity building is a long-term investment that could have significant long-term impacts on the palm oil industry and socioeconomic development in these two countries. One challenge to realizing the anticipated benefits of these programs is protecting against emigration of this cadre of trained individuals in pursuit of better opportunities elsewhere. Successful implementation of these programs would require incentives for participants to remain in the country and within the agricultural sector. Implementing these capacity building programs may be more feasible in Liberia, where there is already a strong presence of NGOs working on oil palm development issues.

Engaging women and aboriginal peoples in these programs will require active outreach to these groups and effective design and management of programs to enable their ability to participate.

5.0 CONCLUSIONS

Developing a zero-deforestation palm oil industry in Liberia and the DRC presents significant challenges. Both countries are emerging from long periods of conflict, face significant development needs, and have vast tracts of primary forest important for climate change mitigation and biodiversity conservation. Both countries also have relatively weak governance and judicial systems that make implementation of REDD+ and other forest conservation initiatives challenging. This dynamic creates a situation ripe for tradeoffs between development and conservation. Oil palm is at the crux of this tradeoff, as it offers a tremendous opportunity for agriculture development in the region but also has potential to drive deforestation of primary forests. Both countries are also unable to meet even local domestic demand for palm oil, in spite of the fact that there are vast tracts of area suitable for its cultivation.

Productivity of palm oil in the region is very low. There is ample opportunity to double and perhaps even triple production on existing lands under palm oil cultivation. The sector should make efforts to achieve these productivity enhancements as a way of promoting sustainable intensification. Any expansion of the sector should be directed to degraded lands as a way of revitalizing these areas and alleviating pressure on primary forests. However, communal use of these areas would need to be considered in order to ensure against communities encroaching into forested areas to secure the benefits that the degraded areas have been providing. These efforts must be coupled with incentives for forest conservation through REDD+ programs, conservation agreements, premium prices, payment for ecosystem service programs, and other mechanisms to reduce deforestation, especially among small and medium sized producers.

Major plantation companies have made commitments to conserve high conservation value and high carbon stock forests and are working to implement these methodologies in the region. They are finding that the standards and thresholds set for Southeast Asia may place significant limitations on palm oil investment in the Western and Central African context. Meanwhile, some multi-national consumer goods companies and retailers have committed to eliminating deforestation from palm oil supply chains. It is unlikely that any of the consumer goods or retail companies are actually sourcing palm oil from Liberia or the DRC, since neither country exports large amounts at this point. Liberia exports more than the DRC and has developed a national interpretation of the RSPO Principles and Criteria to guide sustainable investment in palm oil. The DRC has not yet taken this step.

Given this context, there is a tremendous need to put the right strategies and interventions in place to facilitate development of a zero-deforestation palm oil sector in Liberia and the DRC. While many issues need to be addressed to transition to sustainable oil palm in these two countries, it is necessary to prioritize interventions and address the most critical ones. The following table summarizes the opportunities and risks associated with the suggested interventions identified in this paper. More detailed analysis is found in Annex 3.

TABLE 3. OPPORTUNITIES AND RISKS ASSOCIATED WITH THE SUGGESTED INTERVENTIONS IDENTIFIED IN THIS PAPER

	Promote effective policies and improved governance	Renew investment in extension services/ research to improve productivity	Improve market infrastructure and processing efficiencies	Implement voluntary social and environmental safeguards	Create local capacity to enable implementation of sustainable palm oil development
Scale of Impact	High	High	High	High	High
Target Groups	Ministries of Agriculture, Forestry, Environment, etc.	Ministry of Agriculture, universities, plantation companies	Plantation companies, cooperatives	Plantation companies, civil society, government agencies	Universities, civil society, government agencies
Complementarity in Region	Leverages voluntary private sector commitments	Supports private sector and government commitments to rejuvenation	Supports government and corporate production goals	Complementary to government policy and industry standards	Supports implementation of all opportunities
Development Benefits	High	High	High	High	Moderate
Environmental Impacts (positive)	High	High	Moderate	High	Moderate
Environmental and Social Risks	Moderate	High	High	Low	Low
Implementation and Sustainability Challenges	High	Moderate	Moderate	Moderate	Moderate
Cost	Moderate	High	High	High	Moderate

Based on this analysis, we suggest that investment in extension services coupled with voluntary social and environmental safeguards are the most critical investments for promoting zero-net-deforestation palm oil development in Liberia and the DRC. These investments must occur as the governments of these countries put into place the policies and governance necessary for establishing an enabling environment for sustainable palm oil production, since private sector and civil society investments in the sector are already taking place. There is a strong need for capacity development in both countries to enable effective implementation of land use planning, policy development, technical assistance services, verification audits, and forest monitoring to name a few key skillsets necessary for implementing sustainable palm oil development programs. Finally, there is a need to improve processing and transportation infrastructure if the sector is going to reach the goal of producing export-quality palm oil.

Ongoing security concerns in the DRC and the outbreak of Ebola in Liberia limit investment in the sector in the immediate term. Much of the investment that was slated for Liberia is now going into Cameroon, and it is uncertain when the situation in Liberia will stabilize sufficiently to enable investment to flow back into the region. In the DRC the security situation is stabilizing, but this change has not yet led to significant reinvestment in oil palm in the country. It is unlikely that either country will be the target of much oil palm development in the near term. Instead investors are likely to turn to Cameroon and Gabon. We believe that the approaches identified in this paper are applicable to countries throughout the region and should inform the strategies and investments of plantation companies, international donors, NGOs, and others in the promotion of zero-deforestation palm oil.

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ANNEX A. SAMPLE INTERVIEW QUESTIONNAIRE

LIBERIA

1. What are the major challenges associated with the development of the palm oil sector in Liberia?
2. To what degree are forests threatened due to investment in palm oil in the country? What do you think is driving this?
3. What additional incentives are needed to address drivers of deforestation within the palm oil sector?
4. What types of interventions are you supporting to address deforestation from palm oil in the region? What have been the results?
5. Which interventions to date have had the greatest impact in addressing deforestation concerns within the sector?
6. What additional interventions do you think are needed?
7. Are there opportunities to drive investment onto degraded lands in Liberia? If so, what are the barriers to implementing programs that promote such approaches? How would you propose overcoming these barriers?
8. What impact are market-based approaches (e.g., commitments to sustainable sourcing) having on deforestation in the palm oil sector?
9. What is needed to increase the impact of market-based approaches on deforestation?
10. What is the greatest contribution that private sector companies (producers, processors, traders, manufacturers, retailers) can make to support forest conservation in the palm oil sector?
11. What will be the greatest challenges in addressing these issues via public-private collaboration? How would you recommend we manage these challenges?

DRC

1. What are the major challenges associated with the development of the palm oil sector in the DRC?
2. Are there opportunities to drive re-investment in the palm oil sector in the DRC? If so, what are the barriers to implementing programs that promote such approaches? How would you propose overcoming these barriers?
3. Is there any potential to adapt the domestic market infrastructure to support the international market?
4. To what degree are forests threatened due to investment or re-investment in palm oil in the country? What do you think is driving this?
5. What additional incentives are needed to attract investment and ensure forest conservation within the palm oil sector?
6. What types of interventions are you supporting to address deforestation from palm oil in the region? What have been the results?
7. Which interventions to date have had the greatest impact in addressing deforestation concerns within the sector?
8. What additional interventions do you think are needed?
9. What impact are market-based approaches (e.g., commitments to sustainable sourcing) having on deforestation in the palm oil sector in the DRC?
10. What is needed to increase the impact of market-based approaches on deforestation?
11. What is the greatest contribution private sector companies (producers, processors, traders, manufacturers, retailers) can make to support forest conservation in the palm oil sector?
12. What will be the greatest challenges in addressing these issues via public-private collaboration? How would you recommend we manage these challenges?

ANNEX B. COUNTRY ANALYSIS OF FOREST COVER AND PALM OIL DEVELOPMENT

TABLE 4. FOREST COVER AND PALM OIL DEVELOPMENT

Country Info (1)		Forest Cover & Loss (2)				Concessions & Production				
Name	Total Area (thousand ha)	Tree cover (thousand ha)	Tree Cover (% Total Area)	Forest Loss (thousand ha 2012)	Forest Loss (% Forest Area)	Existing Productive Area (thousand ha) (3)	Potential Suitable Area - Oil Palm (thousand ha) (3)	2014 Production (tonnes) (4)	Notes	Companies
Cameroon	47,544	33,842	71.18%	38	0.11%	58	8,300	270,000	Investment proposals covering 1.2M ha; Plans to produce 450,000 tonnes by 2020	Bollore, Palmol, CDC, Sime Darby, Cargill, Smart Holdings (GAR), Herakles Farms, Biopalm Energy, Good Hope, Palmco
Democratic Republic of Congo	234,485	205,480	87.63%	468	0.23%	38	77,800	215,000	Plans for 100,000 ha expansion	Feronia, CDC
Gabon	26,767	24,791	92.62%	N/A	N/A	7	8,100	2,800 (3)	Aiming to have 200,000 ha planted by 2017 and produce 250,000 tonnes by 2020	Olam, Siat
Liberia	11,137	9,039	81.16%	31	0.34%	N/A	N/A	42,000	Three companies (Sime, Equatorial, GAR) would have access to 629,000 ha	Equatorial Palm Oil, Sime Darby, Golden VerOleum (GAR),

(1) CIA, Area: <https://www.cia.gov/library/publications/the-world-factbook/rankorder/2147rank.html>

(2) GFW, Country Profiles: <http://www.globalforestwatch.org/countries>

(3) Woods Hole Research Center via Rainforest Foundation UK: <http://www.rainforestfoundationuk.org/files/Seeds%20of%20Destruction,%20February%202013.pdf>

(4) USDA via IndexMundi: <http://www.indexmundi.com/agriculture/?commodity=palm-oil&>

ANNEX C. ANALYSIS OF OPPORTUNITIES FOR ZERO-DEFORESTATION OIL PALM DEVELOPMENT

TABLE 5. SUMMARY OF OPPORTUNITIES

	Promote effective policies and improved governance	Invest in extension services and research programs to improve productivity	Improve market infrastructure and processing efficiencies	Implement voluntary social and environmental safeguards	Create local capacity to enable implementation of sustainable palm oil development
Key Recommendations	Support government efforts to develop green palm oil development plan, increase forest management and enforcement capacity, and promote transparency in concession and land use planning processes.	Strengthen extension services of government and private sector and invest in nurseries and research and development efforts to identify most effective production systems for the countries. Enhance capacity of financial institutions to support productivity investments by the sector.	Invest in modernization of mills to improve extraction rates and meet future production increases. Invest in improved transportation infrastructure to improve quality and support development of export markets.	Invest in incentive programs that link technical assistance and economic development programs to forest conservation via RESS+ and/or voluntary conservation agreements. Support policies promoting free, prior, and informed consent with smallholder communities and protection of worker rights.	Support training and capacity building programs to ensure there is sufficient capacity for effective implementation of land use planning, RSPO certification, and agricultural research and development to support a sustainable palm oil sector.
Goal / Rationale	Create secure enabling environment that encourages investment and development.	Increase productivity on existing oil palm plantations.	Increase processing capacity to increase productivity and enable further development of the subsector.	Incentivize the adoption of social and environmental best practices.	Increase local capacity to effectively develop and implement sustainable production programs.

TABLE 6. COUNTRY ANALYSIS OF OPPORTUNITIES IN TERMS OF SCALE, BENEFITS, AND RISKS – LIBERIA

	Promote effective policies and improved governance	Invest in extension services and research programs to improve productivity	Improve market infrastructure and processing efficiencies	Implement voluntary social and environmental safeguards	Create local capacity to enable implementation of sustainable palm oil development
Scale of Impact	HIGH High willingness to develop national policies for sustainable oil palm development. Strengthened governance capacity would have far-reaching impacts for environmental and social impacts of production.	HIGH Opportunities exist for investment by private sector, NGOs, development banks. Current productivity rates are low (~3 tonnes FFB/ha); yield improvements would have high impact.	HIGH Scale depends largely on productivity improvements on plantations; however, if achieved, improvements in mill efficiency could have multiplier effect with investments in yield improvement, and additional capacity could affect ability to access export markets.	HIGH Voluntary efforts to pilot conservation agreements among oil palm smallholders, improve FPIC guidance in Liberia, and enhance labor standards could inform policy initiatives in Liberia and even in other producing countries.	HIGH Additional local capacity for sustainable palm oil production could have significant impacts, particularly for policy and yield improvement initiatives.
Target Groups	Liberia Ministry of Agriculture (MOA), Forestry Development Authority (FDA), Environmental Protection Agency (EPA); Sustainable Palm Oil Working Group; producer companies and cooperatives	Plantation companies with associated smallholders; technical advisors, NGOs, and civil society; multilateral development banks; local and national governments	Major plantation companies with processing facilities; private sector and project finance institutions; and (potentially) international palm oil refiners of CPO/PKO	Plantation companies; government stakeholders (e.g., MOA and FDA); multilateral development banks; NGOs and civil society	Universities and academia; NGOs and civil society; government agencies; plantation companies; community leaders

	Promote effective policies and improved governance	Invest in extension services and research programs to improve productivity	Improve market infrastructure and processing efficiencies	Implement voluntary social and environmental safeguards	Create local capacity to enable implementation of sustainable palm oil development
Complementarity in Region	Leverages voluntary private sector commitments as well as other initiatives underway – Sustainable Palm Oil Working Group, RSPO National Interpretation, FLEGT process for timber, etc.	Supports voluntary private sector commitments to smallholders and reducing deforestation; supports national economic development goals; potential for reducing imports and eventually contributing to export economy	Facilitates government and private sector goals for scaling up Liberian oil palm industry to access international markets and generate export revenues	Voluntary initiatives can offer pilot examples to inform government and private sector policies and practices, particularly around community engagement and FPIC. Voluntary initiative can facilitate improved national policies in line with international standards.	Capacity building efforts would complement and strengthen efforts across major recommendations. Support private sector initiatives through access to trained staff, research and development skills, and certification capabilities.
Development Benefits	HIGH Potential benefits for employment, smallholder production, and supply chain integration; increased government revenue for infrastructure; improved land tenure/strengthened community rights; improved labor conditions (e.g., forced, child labor; hazardous conditions)	HIGH Improved household income from increased productivity; potential to reduce financial burden associated with new planting contributing to smallholder cash flow.	HIGH Improved efficiency enhances profitability of sector. There is potential for increased export revenues to be re-invested in the oil palm industry. Improved infrastructure improves grower access to processing facilities, thus improving quality and quantity of FFB sold to processors, which increases household income.	HIGH Recommendations provide greater autonomy of communities over land use and management. Conservation agreements offer technical and social benefits directly to communities. Improved labor standards contribute to social well-being, health, and safety.	MODERATE Greater autonomy and long-term potential for successful development of sustainable oil palm industry in Liberia; employment opportunities for local population; less need to import human/technical resources; opportunities for higher-paying, skilled labor

	Promote effective policies and improved governance	Invest in extension services and research programs to improve productivity	Improve market infrastructure and processing efficiencies	Implement voluntary social and environmental safeguards	Create local capacity to enable implementation of sustainable palm oil development
Environmental Benefits	HIGH Reduced emissions could be achieved through concessioning practices targeting degraded lands and low-carbon forests for development; policy incentives for HCV/HCS protection.	HIGH Potential to increase productivity of existing oil palm plantations and decrease pressure to expand into forested areas	MODERATE Impacts of increased extraction rates/improved infrastructure are similar to improved yield at production level.	HIGH Conservation agreements can provide safeguards for forests, especially when tied to yield improvements and good agricultural practices	MODERATE Building local capacity for sustainable palm oil could result in longer-term viability of forest and ecosystem conservation and institutionalize environmental requirements for oil palm cultivation
Environmental and Social Risks	MODERATE Policy focus on developing oil palm sector likely to come at expense of some forest areas; potential for leakage through small development near oil palm infrastructure (mills, roads, etc.) and for development by other industries (e.g., mining); risks of FPIC violations with further concessions	HIGH Without safeguards, yield improvements could lead to further development as incomes increase; potential social impacts from monoculture cash crop limiting women's economic opportunities and affecting food security.	HIGH Indirect impacts are associated with infrastructure developments and unlicensed oil palm development or leakage development. Increased processing capacity will generate greater emissions without methane capture technology.	LOW Voluntary initiatives may be suspended or cut depending on finance model. Social conflict persists in Liberia despite application of FPIC. Nullification of conservation agreement for individual violations could result in important benefits being revoked for community.	LOW Some potential for creating inequity within communities and marginalizing women and indigenous peoples if they are not explicitly targeted.

	Promote effective policies and improved governance	Invest in extension services and research programs to improve productivity	Improve market infrastructure and processing efficiencies	Implement voluntary social and environmental safeguards	Create local capacity to enable implementation of sustainable palm oil development
Implementation and Sustainability Challenges	HIGH Low capacity for enforcement and corruption could limit successful implementation. Targeted efforts are needed for land use planning and capacity building.	MODERATE Private sector investment is limited by low profitability. Funding for smallholder training is likely to come from development organizations and civil society.	MODERATE Private sector investment is limited by low profitability. Yield increases will likely encourage greater investment in processing facilities and infrastructure.	MODERATE Long-term financing is needed for conservation agreements. Monitoring frameworks established for conservation agreements could contribute to governance/enforcement capacity.	MODERATE Corruption within capacity building program; investment required to support program; potential incentives to seek private sector employment overseas
Costs	MODERATE In terms of costs, this option ranks fourth (4).	HIGH In terms of costs, this project ranks highest (1).	HIGH In terms of costs, this option ranks second (2).	HIGH In terms of costs, this option ranks third (3).	MODERATE In terms of cost, this option ranks fifth (5).

TABLE 7. COUNTRY ANALYSIS OF OPPORTUNITIES IN TERMS OF SCALE, BENEFITS, AND RISKS – DRC

	Promote effective policies and improved governance	Invest in extension services and research programs to improve productivity	Improve market infrastructure and processing efficiencies	Implement voluntary social and environmental safeguards	Create local capacity to enable implementation of sustainable palm oil development
Scale of Impact	HIGH Some willingness to develop national policies for sustainable oil palm development; strengthened governance capacity would have far-reaching effects for environmental and social impacts of production	HIGH Opportunities exist for investment by private sector, NGOs, development banks. Current productivity rates are low (5-10 FFB/ha); yield improvements would have high impact.	HIGH Scale depends largely on productivity improvements on plantations; however, if achieved, improvements in mill efficiency could have multiplier effect with investments in yield improvement, and additional capacity could impact ability to access export markets.	HIGH Some experience implementing REDD+ projects in the country, but significant need for additional incentive and safeguard programs to develop a zero-net-deforestation palm oil sector	HIGH Additional local capacity for sustainable palm oil production could have significant impacts, particularly for policy and yield improvement initiatives
Target Groups	Ministry of Agriculture and Rural Development; Ministry of Forestry	Plantation companies; technical advisors, NGOs, and civil society; multilateral development banks; local and national governments	Major plantation companies with processing facilities; private sector and project finance institutions; and (potentially) international palm oil refiners of CPO/PKO.	Plantation companies; government stakeholders (e.g., MOA and FDA); multilateral development banks; NGOs and civil society	Universities and academia; NGOs and civil society; government agencies; plantation companies; community leaders

	Promote effective policies and improved governance	Invest in extension services and research programs to improve productivity	Improve market infrastructure and processing efficiencies	Implement voluntary social and environmental safeguards	Create local capacity to enable implementation of sustainable palm oil development
Complementarity in Region	Leverages private sector commitments by plantation companies	Supports voluntary private sector commitments to productivity improvements and rejuvenation of abandoned plantations. Supports national economic development goals. There is potential for reducing imports and eventually contributing to export economy.	Facilitates government and private sector goals for meeting domestic demand and re-developing the export market to generate export revenue and spur economic growth	Voluntary initiatives can offer pilot examples to inform government and private sector policies and practices, particularly around community engagement and FPIC. Voluntary initiative can facilitate improved national policies in line with international standards.	Capacity building efforts would complement and strengthen efforts across major recommendations; support private sector initiatives through access to trained staff, research, and development skills as well as certification capabilities
Development Benefits	HIGH Potential benefits for employment, smallholder production, and supply chain integration; increased government revenue for infrastructure; improved land tenure/strengthened community rights; improved labor conditions (e.g., forced, child labor; hazardous conditions)	HIGH Improved household income from increased productivity; potential to reduce financial burden associated with new planting contributing to smallholder cash flow	HIGH Improved efficiency enhances profitability of sector. There is potential for increased export revenues to be re-invested in oil palm industry. Improved infrastructure improves grower access to processing facilities, thus improving quality and quantity of FFB sold to processors, which increases household income.	HIGH Recommendations provide greater autonomy of communities over land use and management. Conservation agreements offer technical and social benefits directly to communities. Improved labor standards contribute to social well-being, health, and safety.	MODERATE Greater autonomy and long-term potential for successful development of sustainable oil palm industry; employment opportunities for local population; less need to import human/technical resources; opportunities for higher-paying, skilled labor

	Promote effective policies and improved governance	Invest in extension services and research programs to improve productivity	Improve market infrastructure and processing efficiencies	Implement voluntary social and environmental safeguards	Create local capacity to enable implementation of sustainable palm oil development
Environmental Benefits	HIGH Reduced emissions could be achieved through concessioning practices targeting abandoned plantations and degraded lands for development.	HIGH If successful in increasing productivity, there could be less incentive for forest conversion for additional oil palm development.	MODERATE Potential to increase productivity without expanding the footprint into forested areas	HIGH Certification programs and conservation agreements can provide safeguards for forests, especially when tied to yield improvements and good agricultural practices.	MODERATE Building local capacity for sustainable palm oil could result in longer-term viability of forest and ecosystem conservation as well as institutionalize environmental requirements for oil palm cultivation.
Environmental and Social Risks	MODERATE Focus on sustainable oil palm development could limit economic growth opportunities and create backlash.	HIGH Without safeguards, yield improvements could lead to further development as incomes increase; potential social impacts from monoculture cash crop limiting women's economic opportunities and affecting food security.	HIGH Indirect impacts associated with infrastructure developments and unlicensed oil palm development or leakage development. Increased processing capacity will generate greater emissions without methane capture technology. There is potential to weaken role of women in processing.	LOW Voluntary initiatives may be suspended or cut depending on finance model. Nullification of conservation agreement for individual violations could result in important benefits being revoked for community.	LOW Some potential for creating inequity within communities and marginalizing women and indigenous peoples if they are not explicitly targeted.

	Promote effective policies and improved governance	Invest in extension services and research programs to improve productivity	Improve market infrastructure and processing efficiencies	Implement voluntary social and environmental safeguards	Create local capacity to enable implementation of sustainable palm oil development
Implementation and Sustainability Challenges	HIGH Low capacity for enforcement and corruption could limit successful implementation. Targeted efforts are needed for land use planning and capacity building.	MODERATE Private sector investment limited by low profitability and lack of security. Funding for smallholder training is likely to come from development organizations and civil society. Smallholders can be reluctant to cut old trees due to lost revenues.	MODERATE Private sector investment limited by low profitability and lack of security; yield increases will likely encourage greater investment in processing facilities and infrastructure.	MODERATE Long-term financing needed for conservation agreements and REDD+ projects; lack of national interpretation of RSPO for the DRC	MODERATE Corruption within capacity building program; investment required to support program; potential incentives to seek private sector employment overseas
Costs	MODERATE In terms of costs, this option ranks fourth (4).	HIGH In terms of costs, this project ranks highest (1).	HIGH In terms of costs, this option ranks second (2).	HIGH In terms of costs, this option ranks third (3).	MODERATE In terms of cost, this option ranks fifth (5).

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