Timber Industry & Corruption: Sub-Saharan Africa

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Introduction

Kwakumu is a 45-years-old African villager with a family of eight living near the forests of the Congo Basin. His family uses the forest to get small amounts of wood to burn for fuel to prepare meals. Kwakumu harvests fruits from the trees when crops are still growing, and sometimes fells trees to burn and make charcoal for sale to generate revenue for his family. Kwakumu is among the vast majority of rural Africans who interact with forests and woodlands daily. Forests provide the livelihood for most rural Africans on the continent. However, with rapid population growth and successive waves of foreign enterprises entering these poorly governed African states, they have taken over most forests in Africa and people like Kwakumu have lost their jobs and thus can no longer feed their families. Locals now face a new trade-off: convert forests into agricultural land or conserve their traditional homeland – the tropical rainforests of Sub-Saharan Africa.

Selection Criteria

Forests have played a major role in human society. Trees are a sustainable raw material for building, household equipment and transportation; a renewable resource for food, fiber and biofuel; a home for wildlife habitat; and a place for water and carbon storage. Forests are seen as an important tool in the struggle to alleviate poverty and to mitigate climate change. The recent trend of deforestation and forest degradation has raised people's concern about forests all over the world. However, the periodic deforestation is not a recent phenomenon. Historically, there is a correlation between deforestation and population growth. Both of these variables tend to increase during periods of economic development and to stabilize after a society has reached a certain threshold of wealth (State of the World's Forests 2012). With recent rapid population and economic growth rates, human societies demand increasingly more food and energy. Deforestation usually accompanies the expansion of agricultural production and urbanization, in order to use the wood for raw materials and fuel energy. From Exhibit 1, we see that the normal pattern changes during the twentieth century as the tropical forest deforestation rate surpassed the temperate forest deforestation rate. There are three main regions of tropical forests: in Central and South America, in West and Central Africa and in Southeast Asia. Among the three regions, both Africa and Southeast Asia are facing a severe deforestation phenomenon (Exhibit 2). Compared with Southeast Asia, which has already taken great efforts in its forest management, Africa's lack of appropriate forest legislation, regulation and incentives are likely to result in making their forests a target for deforestation opportunists.

Why forest matters to Sub-Saharan Africa?

The forests and woodlands in Africa are extremely diverse, ranging from dry forests to the tropical rainforests. The diverse forests not only provide livelihood opportunities for the people who live in and around forests but they also support a tremendous amount of biodiversity. Sub-Saharan Africa, which is known as an agrarian region, depends heavily on low-input agriculture and animal products. Forest restoration protects wildlife habitat while the conversion of tropical rainforests to agricultural plantations has been immense throughout Sub-Saharan Africa. Therefore, forests do matter to Africans along with a broad range of products, services, and functions that derive from forests.

However, to what extent does the forest sector matter to Africa? Let's examine several factors that have directly or indirectly affected forests and forestry in Africa over the centuries. The most critical factor that could alter the forest pattern is the large population growth rate on the continent. Africa is the world's second most-populous continent. It is estimated that the Africa's overall annual population growth rate is 2% by 2030, compared to the world as whole at 1.5% (ADB 2012). Given the rapid growing population, the anticipated pressure on food, energy and water resource will continue in many African countries. Also, there is an uneven population distribution in Africa. Population density has major consequences on the demand of forest resource use. Take West Africa for an example, its coastal cities are the most-populous areas in the region. The port city Lagos is the most populous city in Nigeria, with an annual growth rate of 2.5% in 2012 (CIA Factbook). It is likely to shift more natural resources to urban areas like Lagos, which may result in a resource use conflict in the future.

Also, the forestry sector is a key component of the gross domestic product in Africa. It is estimated that forests provide up to 10% of the GDP of 19 African countries (Dieng, 2009). This figure is no surprise since there is a large population of Africans who depends directly or indirectly on forests. The timber and non-timber forest products are a major source of income for many African households. The World Bank estimated that forests generate at least 20% of the disposable income of landless and poor families (Dieng, 2009). Therefore forestry is connected with livelihoods, especially in a region like Africa that holds a wealth of natural forests but an even larger share of poor people.

Forests also provide a wide range of environmental resources and services. Some of them have a commercialized value, which could in turn increase financial inflows in Africa. There are a number of carbon projects in Africa supported by foreign donors. Through carbon trading, this kind of projects aims

to bring profits for commercial enterprises or to raise income for local landowners (Jindal 2008)[1]. Forests play an important role in carbon sequestration to mitigate climate change. Moreover, there is an increasing demand for nature-based ecotourism incorporating forests. The sustainable management of ecotourism could generate income without extracting resources. Such kind of non-extractive activities offers a strong incentive to protect forests.

In addition, forests and woodlands of Africa are home to a tremendous expanse of biodiversity, with many species endangered. The Congo Basin is the second largest tropical forest in the world. There are thousands of species living in the forest, accounting for more than 60% of Africa's biodiversity. The growth of logging industries, particularly where logging is illegal, has multiple impacts on wildlife habitats. Besides wildlife hunting and trade, unregulated logging activities change the pattern of forests and thus alter behavior of wildlife and indirectly affect people's livelihood.

Forests contribute immensely to economic and social development through formal trade in timber and non-timber forest products, through environmental services, and through cultural and aesthetic values. Despite forests' importance, Africa's forests continue to decline rapidly. With 17% of the world's forests, Africa's deforestation rate is twice as much as the world average. Among them, Nigeria ranks the first in the deforestation rate of natural forests on the planet (UNEP 2008). Evidence shows that the corrupt and illegal practices in the forestry industry have negative impacts on economic, social and environmental sectors.

Economic Cost

There is a clear correlation between good governance and economic growth. With good and stable policies, a state is more likely to improve the effectiveness of its economy. Otherwise, corrupt and illegal acts will generate undesirable economic impacts. There are several reasons why illegal practices undermine economic efficiency. First, corrupt and illegal activities could lower propensity for investors to invest in the forestry sector. Investors are usually likely to invest under a stable investment climate. However, if illegal activities were easily accessible, investors would be reluctant to invest in the long-term management but prefer corrupt deals as a quick financial return option. Second, corruption in forest sector is likely to increase income inequality. As mentioned above, the economic benefits created by forestry are unevenly distributed in Africa, often favoring the rich but at the expense of the poor. For

[1] We will address the UN REDD program later in the paper.

example, governments give priority to higher-positioned individuals when corrupt deals take place. Also, government creates monopolies for some private interests and thus undermines market competition (Vito 1998). Poor households must spend more in bribes to obtain access to public services. This will reduce the income potential of the poor who depend on forests for a living. Third, forest corruption reduces international technical and financial assistance. Foreign donors are less likely to invest in forest projects where the forestry law enforcement is weak. They might be worried if their aid goes to unfavorable corrupt deals rather than the designated forest aid projects. Examples that include the World Bank and the International Monetary Fund have withdrawn financial support to countries where forest law enforcement is weak (Contreras 2002). Moreover, illegal logging depresses the market value of forest products. Unfair competition between lower-cost illegal timber products and comparative higher-cost legal forest production makes legal timber products unattractive. Therefore, a lower market price will lead to the wasteful use of existing forest resources.

Social Cost

Socially, illegal forest activities can have negative impacts on forest communities. Conflicts between loggers and forest-dependent communities are more likely to take place when each party holds conflicting views on whether or not to grant logging companies permission to community lands. Also, when illegal logging taken place in forest-dependent communities, changes to the natural environment will undermine local people's living condition, especially for whoever depends on forests for traditional livelihoods. With the higher rate of illegal harvest, corruption is likely to lead to a large scale of job losses in forestry industry. At the same time, the redistribution of wealth and unequal employment opportunities will give rise to commercial distortions in the community. Besides economic cost, forest corruption also erodes public trust in the government. The decrease in the government revenue could ultimately have an adverse social impact by relocating the social welfare away from the public sector.

Environmental Cost

Forests produce a variety of goods and services, including timber and non-timber products, soil and water protection, as well as cultural and aesthetic services. Many of these services are not exchanged in any market ince they do not convey a market price, the private sector will therefore not value them for any transaction, but they will continue to consider these aspects as externalities. Corrupt and illegal acts are likely to lead to environmental degradation. The clearing of forests is motivated by converting forest areas into agricultural land or by felling trees to generate revenues. These illegal activities have negative impacts on the environment. First, it will lead to illegal logging in protected areas, including some

protected or endangered species, and immature trees. Second, illegal trade of wildlife as a by-product in forest corrupt deals will deplete the forest biodiversity in an unsustainable way. In addition, the clearing of forests will accelerate soil erosion and negatively affect the agricultural sector. More broadly, deforestation and forest degradation are likely to cause climate change not only for the African people but for the entire planet. As temperatures and rainfall patterns change in Africa, a number of sectors will be affected, such as water, ecology, agriculture, food, and human health systems. So it is necessary for Africa to make significant strides in regulating its forests.

Corruption in Forestry

Corruption in the forestry industry is unique in some regards compared to other types of extractive industries present in developing countries. This is true of its prosecution, analysis, and any prospective anti-corruption initiatives. Forestry differs from other extractive industries in two primary ways: the decentralized nature of the forestry industry, and its low technological entry point. Unlike oil, non-alluvial diamond deposits, minerals, and other extractives, forests cover vast land areas to which millions often have access. The Congolese Forest, which covers portions of Cameroon, Central African Republic, Democratic Republic of Congo, and Gabon covers approximately 700,000 square miles, forested areas in Indonesia, despite heavy deforestation, still account for 84% of the land mass of the country at 325,000 square miles (FWI 2012), and Brazil's Amazon rainforest covers 2.1 million square miles (Counsell 2009)(Maslin 2005). The sheer size of these natural resources, coupled with their inherent close relationship with those inhabitants who rely on them for their livelihoods as well as the fact that they do not neatly adhere to regional or political borders makes them hard to regulate by any governmental or non-governmental organization.

The extraction of timber from these forests requires no special technical knowledge and only basic equipment. The low cost and technological thresholds to this industry allows for any who possess the will and the required basic equipment entrance to this industry. The result is thousands of individuals and organizations involved in the extraction of a resource essential to the stakeholders over vast swaths of land. This again differs from other extractive industries such as oil or minerals which require great amounts of technical expertise and capital investment, prohibiting any but the most well organized and funded organizations from participation. In 2000, nearly 900,000 Africans were employed in the formal forest sector, a number which has grown since then and does not include a great number of informal

participants (Counsell, 2009). These inherent qualities of the forestry industry are evident today in illegal deforestation operations in Cambodia and Tanzania, amongst others, where small independent organizations participate in illegal and corrupt deforestation practices on their own behalves, often in felling trees only by the dozen (ADB 2013). The overall industrial landscape for forestry is one which covers vast areas with sparsely developed infrastructure and in which many thousands of individuals participate legally or illegally. It is a thoroughly decentralized and democratized industry, and because of this government regulation and anti-corruption efforts are difficult to perform effectively. Corruption in the forestry sector is thus an analysis of the overall effect of many small corrupt practices yielding relatively small amounts of money per transaction but which are performed on a grand scale. Such practices are performed across the developing world, impacting greatly, in the end, the ecology, economy, and livelihoods of those dependent on these natural resources.

Not surprisingly, the types of corruption to be found in the forestry sector are reflective of this landscape. This paper will briefly outline the types of corruption present and the frequency and significance of their presence on the industry as a whole. The most prevalent types of corruption in the forestry industry in developing countries are petty and grand corruption. The absence of the lack of a significant amount of government capture corruption is an important missing component of these value chains and one which reflects more upon the inability of the appropriate governing bodies to extend their authority into these areas than it does the willingness of these authorities to participate in corrupt practices.

Petty corruption is the most widespread and deleterious type of corruption currently present in forestry value chains across the developing world. The decentralized nature of the forestry value chain is most conducive to this type of corruption because of the vastness of scale and the large number of small independent organizations who are involved in illegal logging. The practice of small scale illegal logging leads to small scale levels of corruption through petty bribery of government officials and regulatory authorities such as conservation patrols or park rangers. A recent example of this common type of corruption is the story of the deforestation of Kenya's Mau Forest, a forest where all forestry is prohibited. The Mau forest covers some 400,000 hectares, which is small in comparison to most forests in Africa, and serves as a water resource to some ten million Kenyans. The Kenyan government does not allow any logging in this forest due to its importance to the surrounding stakeholders. Nevertheless the Mau Forest has lost nearly a quarter of its total area in the last fifteen years (Njeru 2012). David

Mutoro, the acting director of the Kenya Forest Service places blame on petty corruption involving police and civil servants in the area. In one particular incident, there had been an arrest in early 2009 of a small group transporting thousands of dollars' worth of illegally sourced timber to the home of a senior military officer, who was not named. This instance illustrates both the type of corruption which is commonplace in the forestry industry, but also why it can be difficult to combat. There are small groups of people moving small amounts of resources across a vast landscape.

Grand corruption is also present in the forestry industry although it is less common than that of petty corruption. Grand corruption often takes place at the level of exporting the goods to another country. In many cases high level bureaucrats will legally or illegally issue permits for groups to log an otherwise protected species or region for their mutual benefit. One such case was in Cambodia in 2004 where Cambodian Government officials were facilitating the illegal logging and export of protected species to Laos, Vietnam, and Thailand. In this case members of the Ministry of Commerce and the Forest Administration provided illegal logging operations with documents needed to traverse the boarders of Cambodia bypassing customs and domestic logging laws (Global Witness 2004). It was reported that a number of border passes were made carrying timber worth approximately $700,000 a trip. Those members of the Cambodian government were known to have been involved in such dealings for some time. These transactions are certainly present in the forestry sectors and they can be difficult to locate and combat due to underreporting as well as the dubious legality of such practices.

Value Chain Overview

It is clear from the way corruption is defined and the many places it arises that before we can begin to offer solutions to this problem, a better understanding of the root causes is exposed and incentives for acting illicitly is mapped. To do this, we initially considered using a traditional business tool, the supply chain, which maps a firm's supplier base from raw material inputs to finished product to end consumer in the belief that this would help us understand corruption. However, to understand value creation and opportunities, the supply chain is limited and only includes stakeholders who specifically relate to the production of a particular product. We already assume that, by definition, corruption is the misuse of entrusted power by public officials for private gain, therefore we want to expand our scope to cover all stakeholders who might participate in some form of corruption. With this broader scope, we will utilize the private sector tool of the value chain and apply this mapping to the public sector in order to create

more value for the various stakeholders such as the communities affected, the forests affected, and the local government—not solely private sector firms or its agents. We've found that there are a number of 'chains' related to forests outside the timber supply chain; for instance, there is a regulatory chain responsible for licensing all concession allotment; a chain for revenues which includes the financing of the timber supply chain; a chain for reporting and evaluating activities; and a chain for enforcement to ensure firms are in compliance with stated regulations. Our belief is that by disclosing and publicizing the various transaction points along the 'life' of the timber product and including all the various value chains, citizens and public bodies can better understand the source of corruption and make concerted efforts to address abuse when it is identified.

It is important to highlight that the forestry value chain is complex, as we can see from the various chain segments listed above, so our analysis will attempt to simplify its moving parts and consider a linear analysis due to our limited scope. Without generalizing the value chain it would be difficult to fully analyze the variations that exist due to the timber's country of origin, the private sector firm involved, the type of wood product being extracted and sold, and the destination market. The various value chain segments we will address are the regulatory segment, growth and production, harvest and felling, transporting, processing, exporting, and end consumer. For each segment of the value chain we will analyze the following:

1) segment activity and stakeholders
2) corruption within the segment,
3) the response thus far and any outcomes related to that segment, and
4) examples including the real impacts on the ground.

Before we begin with the segment analysis, we want to expose the overarching price incentives to put our analysis in context. In particular, we find that as you move downstream (from the regulatory chain to the end consumer), the margins for each segment increase exponentially, producing higher rents for stakeholders to exploit. In the case of the leaseholder or the manager of the forest lands (typically a small holder peasant farmer), the amount they receive in revenue just covers their initial investment, whereas a buyer of wood logs is making upwards of x350 times the level of revenue and nearly 6 times greater its costs over revenues (Kishor and Damania 2007). These spreads are largest in the middle of the timber supply chain where there are a number of middle-men and traders who are working off

imperfect information. We can also see that where the voice of peasants, villagers, and citizens is least powerful, the more exploitation takes place. Exhibit 3 demonstrates that those who spend the most time managing the timber resource end up making the least and the chain segment using the timber the quickest makes the most amount of money; therefore, much more monetary incentive exists the further downstream you go on the supply chain. Although exemplified several hundred years earlier, this aligns with Adam Smith's notion of how we value commodities[2]. Now this is disconcerting, because the more stringent rules and policies put in place to address sustainability places pressure on forest owners and increases costs, limiting social, economic, and environmental benefits since this will be the group who needs those revenues the most further exacerbating the affects for the group (or chain segment) who makes the least spread on earnings and altering their ability to manage the forest resource. Yet inequality between these various chain segments should not lead one to think that corruption only exists where the rents (spreads) are highest. As we will uncover in our analysis, corruption exists at each chain segment in varying levels and for quite different reasons.

Segment 1 – Regulatory

Enabling Environment

Due to the nature of the timber industry, and the requirement that the state typically manages forests as a public good in Sub-Saharan Africa, we begin our value chain analysis with the regulatory chain segment. In essence, the regulatory segment is where the government or state produces the enabling environment for commercial and public activity to occur. In timber, this includes the various policies that are passed to favor either commercial interests, political interests, or the social good (albeit rarely). It also incorporates the procedures of zoning and allocation of concessions or permits for users to operate within. These frameworks are intended as a form of state or policy capture so that tax revenues can be obtained for further redistribution to the general public in the form of other beneficial services. However, with an extractive industry like timber, this rarely occurs due to the many factors that contribute to corruption such as the lack of land classification, ineffective forest management systems, non-transparent and unaccountable concession allocation, poor revenue collection systems, ineffective border controls, inadequate log surveillance, and in general poor governance incentives to name but a

[2] In The Wealth of Nations, Adam Smith distinguishes between the value of water and diamonds, stating, "*the word value…has two different meanings, and sometimes expresses the utility of some particular object, and sometimes the power of purchasing other goods which the possession of that object conveys. The one may be called '**value in use**'; the other, '**value in exchange**.' The things which have the greatest value in use have frequently little or no value in exchange; and, on the contrary, those which have the greatest value in exchange have frequently little or no value in use. Nothing is more useful than water; but it will scarce purchase anything; scarce anything can be had in exchange for it. A diamond, on the contrary, has scarce any value in use; but a very great quantity of other goods may frequently be had in exchange for it.*" (Patel 2009)

few. The term governance typically embraces the five principles of transparency, participation, accountability, coordination, and capacity (see Exhibit 4 for more details on governance and forest governance); however, in the timber industry, forest governance looks at a different, more specific set of issues. The four key issues that forest governance impacts are forest tenure, land use planning, forest management, and forest revenues and incentives. What makes forest governance so elusive is that much of the land in Sub-Saharan African countries was given over to the state at independence but systems for property rights and land tenure were never fully worked through. Essentially, states had traditional or customary land tenure systems with families associated with their land over any number of years and more formal or legal property systems that catered more to the elite or even local power bases. In any case, this structural problem is never addressed when we begin to consider the recommendations and solutions put forth by scholars and officials. Partly due to the nature of how challenging land rights are to local politics, partly due to poor governance which includes the lack of locals to participate in the process of defining the system that they will have to live within.

Policy

Over time and after enough damage was done not only to forests but to the animals and endangered species that lived within forests did international bodies begin to address forest management from a preservation and sustainability perspective. The first of these was put forth by the World Conservation Union and in 1975 the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) was adopted. This was a landmark agreement between 80 countries that hoped to stem the reduction of our world's natural capital. Soon after civil society groups pressed their governments and global governing bodies for greater care of their natural resources. In 1978 the Treaty for Amazonian Cooperation was signed, then the International Tropical Timber Agreement (ITTO) in 1994 and following this, the Convention on Biological Diversity in 1995. By 1997, a Commission on Sustainable Development hosted an intergovernmental panel on forests that then created the International Forum on Forests. Each of these policies aimed for global support of natural resource degradation, however implementing these policies meant local governments had to take action, something the authors failed to incorporate and understand how challenging this could be. Then in 2003, after learning from the previous mistakes on international conventions, the EU passed the Forest Law Enforcement, Governance, and Trade (FLEGT) Act which specifically banned the supply of illegally logged timber into EU markets. To get this done, they realized that bilateral agreements were required to promote country responsibility and local governments taking action, and to get there the EU would use Voluntary

Partnership Agreements (VPA's) instead of broadly imposed authoritarian policies to establish greater internal debate within governments who were producing illegal timber. This new country specific relationship to address deforestation and illegal timber felling spread quickly. In the same year, the Africa FLEG was established, then in 2005, the Europe and North Asia FLEG began. By 2008, the US came around and signed the Lacey Act which gave even harsher penalties to anyone associated with illegal timber entering US markets. More recently, the Swiss Forest Law and the Australian Illegal Logging Prohibition Bill passed in 2010. See Exhibit 5 for an overview of the EU FLEGT program and case analysis.

Zoning and Allocating Concessions

As mentioned above, the zoning and allocation of forest concessions is another fundamental issue that leads to forest corruption. Zoning typically refers to the initial delineation of use for the forest and traditionally is separated into three categories: production, conservation, and community use. The allocation of forest concessions is the decision making process for authorizing use of forest lands. In both the zoning and allocation cases, the lines are always blurred by country specific definitions of how these terms are used. For instance, in the Democratic Republic of Congo (DRC), the government introduces policy capture by creating three zoning categories—protected forests, production forests, and multi-use forests. The definition of multi-use forests confuses the process and creates a gateway for illicit behavior to occur. With respect to allocation of forest concessions in the DRC, the criteria used to establish concessions are unclear and undocumented. In addition, the process typically is not transparent, leaving no ground for analyzing or questioning the outcome. Most importantly, although there are formal policies for consultation with local community stakeholders, this is not taking place with locals, entirely surpassing the livelihoods debate that touches all Sub-Saharan African forests.

Corruption

Our goal at each segment is to highlight the specific examples of forest corruption that take place and then dive into a specific example that touches on this. At the regulatory chain segment, the following activities reflect corrupt behavior: 1) ministers, legislators, and other high officials accept bribes to shape forest laws, institutions, and procedures; 2) public officials award concessions to favor bribers and do so in a non-transparent, exclusive manner; 3) public officials award timber concessions to relatives; 4) forest officers, police officers, and prosecutors take bribes to ignore violations of forest laws, including laws forbidding harvests in national parks and international laws protecting endangered

species; 5) forest operators (or bidders) make cash payments to a forest officer to win the right to cut trees on a government forest; 6) forest officers demand that their subordinates pay kickbacks for salary increases and promotions; and 7) forest officers place friends and relatives on the agency payroll, even though they are "ghosts" who do no actual work or may not exist (Kishor and Damania 2007).

Response and Examples

One of the attempts to alleviate forest corruption and the tensions which follow in local communities was to issue permits that aimed to support the local population in meeting their livelihood needs. Granted, this must be put in context. In the DRC's Congo Basin (see Exhibit 6 for more information on the Congo Basin forest), the government is already allowing private firms and foreign operators into the forests of the Orientale and Bandudu provinces to export logs. The manner in which the Congolese government approached the subject was not to address deforestation and corruption, but to silence civil society voices (mainly originating from foreign NGO's). Instead of keeping locals who live in the forests outside the system, the government simply created a mechanism for them to participate and this birthed artisanal logging.

Where, then, is the corruption in artisanal logging? According to Greenpeace, a moratorium on the allocation of new industrial logging concessions was imposed in 2002 and reconfirmed by presidential decree in 2005, but it has never been properly enforced. Artisanal logging permit issuance has increased and by law these permits are reserved for small holders and Congolese individuals, but currently the government and foreign investors are abusing the artisanal logging permit system for disguised industrial logging operations. Several CSO's (civil society organizations) have recorded and monitored this as an illegal activity which aims to circumvent the moratorium on industrial logging (Greenpeace 2012). However, corruption in the Congo is quite egregious and the evidence is mounting. Then Forest Minister Jose Endundo, who had signed many of the artisanal logging permits, told Global Witness that Ministerial Order 035 which set out the majority of the legal requirements has never been applied because forest management in the DRC was in a "*transitional phase*". He claimed that the execution of this order had been explicitly suspended before he came into office. Global Witness even asked for a copy of the ministerial note suspending Ministerial Order 035 however they did not receive a reply (Global Witness 2012). Additional evidence of corruption also exists: of the 146 artisanal permits issued, since 2010 issuance and use breaches forestry laws in ten different ways; all permits audited explicitly grant "*the authorization to carry out industrial logging*"; operators are clearly cutting more

than their permits allow; permits are issued with both 'Artisanal Logging' and 'Special Permit' listed, creating legal confusion; no social agreement with local communities exists nor any centralized management plan for sustainable logging; artisanal permits are being used to log the protected 'Wenge' tree species, all destined for China (with partnerships between the DRC government and Chinese firms); and on the ground monitoring by public officials is non-existent (Global Witness 2012). This list should be enough to take any government to task, yet this style of grand corruption, where it is infused in multiple layers of the government, in the stakeholders participating in the timber industry, and the outright silencing of local voices begs for both outside and systemic intervention. Licenses originally intended for local citizens are given to large companies, multiple permits are allocated when there are limits, and social contracts are not upheld in any manner. The evidence itself speaks to the culture of corruption in the Congo, and terrorized abuse and disenfranchisement of locals trying to take a stand. If the regulatory environment is this overrun by barons, there is bound to be more corruption as our analysis moves downstream to the growth and production segment of the value chain.

Segment 2 – Growth and Production

Activity and Corruption

In the growth and production segment of the timber value chain there are four general categories that forest managers use to define how trees are produced: natural, silviculture, plantation, or active growers. Silviculture refers to the active management (such as planting, thinning, pruning, clear cutting, and general care) of forests whereas natural growth forests or regenerated forests are those which have simply been allowed to grow without human management. Plantation farms are typically managed by large firms for the marketplace and are not traditionally diverse in their makeup. Growers can be considered plantation owners, silviculture, or even small scale—similar to how SSC-VI of Sweden functions throughout the Great Lakes region in East Africa[3]. Silviculture and growers face multiple vulnerabilities such as policy capture for legal but unsustainable supply of timber, bribery of politicians and forest guards for illegal supplies, bribery of officials to evade royalties and timber taxes, and bribery in forest service for transfers to remote estates with high timber resources (natural growth). One of the most egregious examples of corruption at the growth and production segment is when forest officials extort payments from landowners for forestry services that the state should supply at a nominal fee. In a way, this is state capture, bribery, and extortion all in one.

[3] SSC-VI manages networks of agroforestry specialists who build nurseries and work through cooperatives to improve rural farm homesteads and large rural farms.

Response and Examples

The normal response to eliminating corruption at the growth and production segment is to tax the leaseholder, owner, or producer. As we'll see in the recommendations analysis, this policy in fact creates other problems of poor forest management, forest degradation, and simply redistributes some of the rents, but doesn't shift the problem of corruption on the ground. Because of this, solutions that have tended to be top down haven't progressed while interventions that focus on this specific value chain segment have taken lives of their own. The key issue here is the value of the forest resource supply. If either private owners or governments can eliminate scarcity rents by augmenting timber supply in the market, then buyers will have an option to 'go legal' in a sense. An expert study by the World Bank on the global demand and supply of wood and fiber indicates that plantation forests managed exclusively for fiber and timber production on just 4% of the forest lands could meet 50–60% of the world demand up to 2050. This appears to be a feasible option considering the significant amounts of degraded land and high demand for wood and wood products in China and India. These two countries in particular are prime candidates for investing in fast-growing industrial plantations. The argument is trees, even fast-growing varieties, take time to grow and thus any strategy to combat corruption and illegal logging must invest in the development of plantations today. Between 1990 and 2000, plantations increased by about 5% and stand at almost 190 million hectares for industrial and nonindustrial uses (global forests total 4 billion hectares). China accounts for 45 million hectares, and China, India, and the Russian Federation together accounted for half of the world's forest plantations in 2000 (FAO 2001). In Africa, forests cover 23% of the land and tropical wood products are valued at over $20 billion with growth increasing in higher value added products such as furniture. Thereby increasing legal supplies so that demand will fall for corrupt forest products is already in practice, however, this is somewhat flawed in design since incentives such as price are not factored into this. With increased regulation and bureaucracy come increased transactions costs, something a buyer still has to consider when they go to market. Exhibit 7 shows what the United Nations is doing to increase the value of forest resource supplies via its REDD+ program.

Segment 3 – Harvest and Felling

Activity and Corruption

Like the regulatory chain segment, the harvest and felling segment is another source of corruption due to the various activities that take place here. We have generalized this segment to include stumpage, pit sawyers and saw milling contractors, and the local timber trade. Stumpage is similar to a concession

in that fees are paid for pre-determined and measured space within a forest block to allow operators such as pit sawyers and other contractors to legally fell trees. Pit sawyers are the typically local operators who make a living off felling trees. They are also only allowed to fell specific areas with specific quotas on tree numbers, however, this is where the administration gets fuzzy. If gamed correctly, a pit sawyer will pay for a single permit but fell an equivalent of five permits worth of trees. The corruption enters when the public official knowingly supports the pit sawyer and requests bribes for the permits offered (specifically the lack of), ultimately securing additional funds while appearing to protect the public's forests. Saw millers then operate off of any business generated from the pit sawyers; they are typically smaller in number and must have the tools and equipment to operate, therefore, their participation in the value chain is more of a mediating role to reach the next phase. The local timber trade exists primarily for local construction and charcoal for fuel and cooking. One of our findings demonstrated that when a tree is felled and reaches the local market while still wet, it is a sure sign of corruption since the tree never had time to dry or if any identifying information was on the original felled tree, it would be invisible by the time the wood was milled and taken to market. Labeling this corruption, however, discriminates against local markets because there is no local form of certification, control, or monitoring of logs. The examples of corruption at the harvest segment are very few and mostly belong to local communities and traders trying to make money. As mentioned in the overview section above, margins at each value chain segment increase in value as we move down the value chain towards exporting and foreign markets. Yet it is this middle stage, where information is very hard to verify and weak formal systems are in place to ensure legality, that rents increase exponentially. This is why most of the efforts to address corruption of forests have centered on the chain segments between concessions and harvest.

Response and Examples

On Malawi's Viphya Forest Plantation reserve, a number of challenges exist that involve a number of different stakeholders. Keeping the value chain framework as a reference, we can see where the problems lie for managing forest corruption in Malawi. For starters, the buying price of timber is below the breakeven point, so harvesters must receive subsidies from the government, a form of taxation that is difficult to see by the masses. The Malawian government is willing to do this (and knowingly does so) because the rents they extract at the border far outweigh the subsidy they pay to harvesters, essentially, keeping the public as far removed from any benefit of the commons and records on the books. The above cost rents are in the 76% range for export to Tanzania and 138% for Kenya (Kafakoma and

Mayaya 2009). Yet it is harvesters at the bottom of the value chain, those that are the poorest, who benefit the least and in addition have the lowest earnings. Traders also do not see much incentive to participate with high cost hurdles such as stumpage rates, cost of planks, border charges, and transport charges; in the end, it is the foreign operators who gain the most, typically an MNC (multi-national corporation) or SOE (state owned enterprise). To facilitate these high earnings for foreigners are government agents at the border who abuse their power, by recording transactions incorrectly and taking excess taxes in rents. For the operator, their decision is rational because they understand revenues as profits (but in accounting, profits are equal to revenue less costs). For them, cutting more wood will bring more 'profits' not less, further exacerbating the deforestation and degradation issues of Viphya, even continuing the cycle of corruption since the border agents will continue to misreport (unless technology is introduced).

The analysis therefore uncovers some disheartening trends. First, there is unsustainable utilization of forests and timber as measured by the left over wood processed to 'fit'. Second, competition for forests is high because of cheap stumpage costs (and free allocations by the Malawian government). Third, there is an influx of foreign operators who undermine local operators and influence those protective agents. Finally, there are no guarantees on renewing licenses, which leads to uncertainty for local operators—unless you have resources to pay for the licenses themselves, you remain at a disadvantage. But the government had identified the steps it needed to take to address corruption, however they could not commit to them. The policy recommendations they identified as a result of excessive illegal logging and tremendous deforestation include monitoring the industry, allocating more human and financial resources to manage forest borders, record keeping, re-planting more trees, allowing for local competition to compete with foreigners, market analysis, adding value to wood products in-country prior to export, and using 'wasted' wood for locally viable products (Kafakoma and Mayaya 2009). Within the value chain, annual harvest reaches 600 hectares while replanting is only 400 hectares, so with export markets offering high rents, low budget allocation to the forestry management from the central government, and border officials poorly keeping records, implementing these recommendations will be difficult. The mere fact that the budget remains low is a sign of corruption in the sense that the state is allowing border officials to personally capture what should be taken care of by proper forest management and oversight. It also doesn't help that wood is a buyer driven market whereby the allocation, plantation, harvest, trade, and clearing at border posts will continue as long as buyers demand the wood from Viphya. Therefore, the incentive for officials to offer licenses is high yet the

way they operate this exchange is to limit the number of licenses and allow excessive harvesters or operators to enter the forests knowing they will still have to pay fees at the Tanzanian border.

Segment 4 – Transportation

Activity and Corruption

Similar to the harvest value chain segment, the transportation segment is an activity where there are many private operators competing for an even smaller share of work. Since the forestry sector is not vertically integrated, there are many players, most of who are small, and no large firms entering this space to control the entire market for any segment of the value chain (likely due to the excessive transaction costs and low margins). There are a number of different types of transporters, however, we consolidate them into two categories: those working directly with contracts, stumpage, or concessions and those who are entirely private. Both categories take felled timber to the local market or to the border for export, often times remain with the timber until it reaches its warehouse destination or port. With this number of private operators spread out over the entire forest region, it is difficult not only to monitor but to apply rules that reach all the operators. Many of the decisions transporters make are based on conventional behavior where incentives are to make money and do not align with the public interest of preserving forests or abiding by new rules or policies. Corruption vulnerabilities continue to emerge in the transportation segment. For instance, bribery of customs and transport officials and local police occur; bribery of transporters to carry illegal logs by operators takes place; and bribery of bureaucrats by transporters for fraudulent permits to launder illegal logs and cross borders to gain legal status exist (Hermosilla and Contreras 2001). Other examples of corruption at the transport level include avoiding delays in issuance of timber transit permits, which leads landowners to bribe not only the local forester but also the local tax and land officials; and enforcement officials stopping perfectly legal log shipments on the road and threatening to charge the drivers with illegal transport unless the drivers pay a bribe (Kishor and Damania 2007). Even within the transportation segment, multiple stakeholders participate in the acts of corruption to see their own gains. This section raises an important distinction in the corruption debate: without a proper model or structure for doing business, the selfish nature of individual operators along the value chain compromises the entire economy. It is the local economy that suffers, as a whole, for the individual's miscalculation and the poor models for governance that exist for them to follow. A 'tragedy of the commons' ensues by participating in an act that is originally intended to help someone survive, for their livelihood.

Response and Examples

One of the few success stories in forest governance comes at this stage (it really could be applied to any stage of the value chain). In the Philippines, small networks or committees were established in 1994 to serve as collection centers for information about illegal forest activities by tapping into the members formal and informal networks. The committees would read reports and discuss them openly among whoever was present, ultimately publicizing corrupt behavior among the local masses. Shortly thereafter it was difficult for those perpetrators to hide, especially because a majority of the police force was comprised of family members of those who happened to be reading the reports in the committees. In the beginning, there were only 16 of these cooperative groups which began with seed funding from the World Bank, but by 1999 there were over 400 such groups. And the impacts were tremendous—the cooperatives peer pressured local officials to confiscate and seize over 350 million pesos worth of logs, destroy and close illegal sawmills, and arrest and prosecute illegal loggers. It was clear that the Philippines was able to leverage these small networks, which lead to some overarching lessons that could serve other regions. These committees provided an acceptable venue for people to report illegal activities, especially when there was absolutely no trust with local police since many feared retaliation. They were also effective in mobilizing public opinion against forest crimes, deterring violators for the shame it might bring them to face public scrutiny. It just happened that law enforcement had collaborated effectively and taken action against forest crimes, however this was cultivated by astute villagers and peasants who had seen the bigger picture. In the end there was a virtuous impact where officials were encouraging other civil service organizations to form their own protection groups. By giving local communities greater control of their natural resources and establishing partnerships with both the government and the private sector, this is a utopian example of the collaborative power that can arise if the greater good is in perspective.

Segment 5 – Processing

Activity and Corruption

The processing of raw materials into logs or other commodities is one of the most promising points for intervention on the value chain. The processing of harvested timber represents the last bottleneck in the value chain where the identification of the source of the timber is not made increasingly difficult through the diffusion of illegally extracted material with legal material. Secondly the processing of timber is a step which is absolutely necessary and one which benefits from a scalable economic model, making it is common to see processing centers which service legal and illegal operations, and at a

location where there is often some sort of government or regulatory presence. The point of processing in the value chain is where so called "timber laundering" takes place. This is the process by which illegally harvested wood is processed into lumber thereby becoming indistinguishable from other lumber confounding any further anti-corruption intervention. After processing takes places it becomes increasingly difficult not only to counter corrupt practices but to identify where and when they might have taken place. Both direct and indirect bribery is present at this stage in the value chain, where those responsible for identifying and marking legal and illegally sourced timber are bribed to ignore illegal activity or fraudulent documents are issued to allow the entrance of illegal lumber into the legitimate value chain (UNEP 2012). The identification of these practices on an industry wide scale is primarily done through checking the expected output of a region against the actual output. In many cases, such as Tanzania, the expected output only accounts for a fraction of the total production of the sawmill processing centers (Milledge 2007). Exhibit 8 illustrates the ratio of illegal to legally sourced timber from tropical timber exporters.

Response and Examples

Tanzania and Indonesia are both examples of countries which suffer from a great discrepancy between what the expected legal logging output should be and the actual processing production and exports. The ownership of sawmill processing and harvesting groups is complicating the tracking of timber through the laundering process and makes certification or government oversight very difficult. The line at this point in the value chain between corruption and poor oversight is difficult to ascertain with certainty since most cases of corruption are anecdotal and do not immediately translate to industry wide norms. However the sheer discrepancy between documented legal and illegal production would indicate significant levels of corruption outside of oversight problems.

There are significant attempts by international organizations to certify lumber which is sourced legally and ethically in an attempt to mitigate the problem of lumber laundering worldwide. The Programme for the Endorsement of Forest Certification (PEFC) and the Forest Stewardship Council (FSC) are the two largest organizations worldwide. The PEFC represents 35 independent national forest certification systems totally 250 million hectares, or two thirds of the world's certified forests. Both of them are non-governmental organizations which seek to be involved throughout the entire forestry supply chain to promote ecological, social, and ethical standards. Most of their focus is on supporting sustainable farming techniques as well as ensuring the legal extraction of timber in the forestry industry (PEFC

2013). Through initiatives such as the PEFC Chain of Custody certification they seek to incentivize the wood processing industry to allow them to trace the origin of the wood they process in return for a label of certification leading to increased demand and price of their products (PEFC 2013). They are currently working with multiple governments in both developed and developing countries to require certification in all or certain regions of their forestry industry, with mixed success. It is problematic that these certifications are, in the end, voluntary, and those who are operating illegally or are involved with corrupt practices are unlikely to accept their terms. It is, however, a promising angle for anti-corruption NGOs to involve themselves at a crucial point in the forestry value chain, and one which is just now gaining significant traction in many countries. With the backing of developed countries who consume many of the end user products, these NGO's involvement could prove beneficial to the practice of wood laundering, and illegal logging in general.

Segment 6 – Export and Trade

Activity and Corruption

Forestry is an industry whose demand is driven largely from the consumption of goods by developed countries. Generally the paths of raw or processed timber will flow through a manufacturing hub such as China and eventually find its way, as a finished product, to the European Union, North America, or India. The trade of this material is of primary importance for both the country of origin and the producers themselves. For the countries of origin the exporting of these commodities is the final point at which the benefit to the country and the stakeholders in general will be able to profit from the exploitation of these resources. Corrupt practices in the exporting of these materials have deleterious effects on state revenue and subsequently the livelihoods of the inhabitants of the deforested areas. The primary actors in the actual export of these goods are the tradesmen themselves, government authorities such as customs officers and bureaus, and international organizations working to either enforce trade laws or give disincentives to those who would trade in illegally sourced materials. At this point the economic incentive structures are heavily weighted in favor of those who are rent seekers and takers in a corrupt system. This is because the primary importers or timber from developing nations are not countries with whom most of the NGOs have leverage. Chinese importers, who are the largest importers of timber and lumber from developing nations, have little or no incentive to adhere to any laws but those of China, who happens to take a laissez faire attitude to such matters.

Response and Examples

The point of export can also be informative when attempting to quantify the effects of the illicit forestry industry. The Environmental Investigation Agency (EIA) estimated that Mozambique lost nearly 30 million dollars of lost revenue in 2012 alone to corruption in forestry (EIA 2013). There are ample examples of active corruption in Mozambique during this same time period. The Mozambique First International Development (MOFID) company is a large exporter of legal forest products and is also involved with other agro-businesses in Mozambique. Liu Chaoying, head of MOFID, routinely exports illegal species to China and holds around one million hectares of forest concessions in Mozambique. When asked by EIA if he was able to export large quantities of first class (illegal) species logs he replied, "Sure, only a matter of price" (EIA 2013). Another method used in the corrupt exportation of logs is marking illegal logs as finished products, allowing them to circumvent export laws. Pingos Marinha, a Guangdon China based affiliate of a Mozambique exporter, explained this process to an EIA investigator. The owner of this company, Zheng Fei, also owns a Company called Casa Bonita International, a company which had its license revoked due to the illegal exporting of class one timber; however his other company Pingos was given a twenty thousand hectare concession by Mozambique authorities in March of 2012 (EIA 2013).

One of the most significant anti-corruption efforts to be made thus far at the point of international trade in the forest industry value chain is that of the recently amended Lacey Act. The United States Lacey Act bill was originally signed into law in 1900 but has recently been amended in an attempt at the prevention of illegal logging practices. Specifically it makes it illegal for a US company to import or transport wood which is sourced illegally, see Exhibit 9. This amendment is made in the same style as the successful Kimberly Process which outlawed diamonds sourced from certain conflict areas. The law is an attempt to stifle the trading of such resources and products by outlawing them in a large consumer market. The law has so far been difficult to enforce due to the rampant laundering of illegally sourced timber as well the inherent difficulties in tracking any given piece of wood's origins. However the Lacey Act has given private companies an incentive to look deeper into the sources of their timber and has resulted in many companies starting their own due diligence structures in purchasing and tracing their resources (EIA 2009). The Lacey Act is a recent attempt at intervening at this level of the value chain, its effects are still

just impacting private practitioners, but there is cause for cautious optimism given its initial effects.

Segment 7 – End User Products

Activity and Corruption

The final stage in this value chain is, of course, the end user products. This is simultaneously the point at which many people become aware of the issues with illegally and unethically sourced lumber, and the point at which intervention may be the most difficult. The end user products generated are largely furniture and consumed in developed countries far away from the origination of the wood. There are multiple companies who claim to be dedicated to producing ethically sourced and corruption free material for their products however without international standards which are monitored actively, these efforts fall short of an effective large scale anti-corruption tool. In addition to such venders, the efforts of legislative action of consumer countries such as the Lacey Act are complicated by the reliance of private industry to actively pursue the legality of their material sourcing through independent and self-driven means. Their ability to do so is greatly inhibited by a global trade system which will often involve hundreds of people in the source materials by the time a finished product is ready of sale. At this point there is little discernible corruption due to the "laundering" of these resources. Many groups, such as the EIA, have argued that the growth of awareness by the end consumers of these goods has resulted in an increased incentive for private companies to pursue their own due diligence which may pay dividends over time. These effects, however, will be belated and small compared to other interventions which can be made at earlier points in the value chain.

Response and Examples

Ikea is one of the larger consumers of raw material sourced from these tropical forests as well as a major producer of goods consumed in western nations sympathetic to the awareness of the problem of illegal and corrupt logging practices as embodied in legislation like the Lacey Act. They have reacted by developing their own, independent, due diligence system to attempt to ensure the wood they consume is legally sourced. They state on their website that their long term goal is to source all wood from "forests certified as responsibly managed" (IKEA 2013). Their due diligence model is entitled "The IKEA Staircase Model" which attempts to not only track the origin of the wood they are supplied, but also that the wood is produced in compliance with the domestic regulations applicable to that region (Exhibit 10). The reaction of IKEA to initiatives such as the Lacey Act and the growth of international certification

programs such as the PEFC show promise in that they seem to be making a sincere effort to self-regulate their sourcing of materials. However they are also quite clear when it comes to their ability to realistically satisfy the demands of legislation like Lacey Act. An IKEA compliance officer stated the Lacey Act would require "IKEA to transmit 33.6 billion lines of data over the course of a year to track wood species from its network of 1,380 suppliers of components and finished goods in 54 countries", calling the requirements "unrealistic"(Combs 2008). This is a good illustration of the overall effects of anti-corruption efforts at the end user, or even international trade level. Although NGOs and governments might succeed in making private companies more mindful, the realities of the complexity of the industry after processing and export prohibit significant levels of intervention.

Recommendations Analysis

Based on our analysis, we will not extend new recommendations that might be difficult to implement. Instead, we will highlight the recommendations other researchers, policy makers, and academics have put forward and examine how these may or may not address the issue of corruption in the forestry sector and timber industry.

A number of recommendations have already been put forth by various authors, each offering a synthesis of their findings and solutions that are, in reality, difficult to implement. For instance, Contreras and Hermosilla from the World Bank explain in 2001 in "*Law Compliance in the Forestry Sector: An Overview*" that the best way to address corruption in forestry is to: 1) strengthen property rights, 2) eliminate undemocratic decision-making, 3) increase rewards for integrity, 4) increase rewards for the probability of detection, 5) increase penalties, 6) reduce discretionary power of government, 7) streamline policy, legislative, and regulatory frameworks, 8) increase use of market mechanisms, and 9) involve the media (Hermosilla and Contreras 2001). This is quite a comprehensive list that begs further analysis. Their recommendations are almost identical to the lists researchers and academics were considering for corruption in general at the time. When looking further into these recommendations, we find that an 'implementation gap' exists. As defined by the Center for International Private Enterprise, an implementation gap exists if there is a difference between laws on the books and how they are carried out in practice (Nadgrodkiewicz 2012). Countries in Sub-Saharan Africa with poor and weak governance structures exhibit this the most; Uganda, Kenya, and Tanzania, for instance, each have very strong laws which have been pushed through their legislative bodies that in fact favor sustainable

forest management and legal logging. Yet the implementation gap is widest for these countries and therefore the correlation between the degradation of their forests, illegal logging, policy capture, and bribes for instance, is strongest here.

Simply taking a look at the list that Contreras and Hermosilla put forward it is easy to consider how difficult implementation is. Property rights, for instance, must be changed from customary rights and practices, which is an endeavor in itself. Research thus far points to property rights adding value to those in power who can access and utilize the formalized administrative systems; however, for the majority of peasants and villagers who are outside this system and who were not in positions of power in their respective communities, they saw their property rights disappear (Barrows 1990). In the case of forest people and communities, the latter case is most likely to occur, further exacerbating the aims of improved forest management and governance. Increasing penalties also makes sense, if you have the resources to follow through with. More importantly behind this recommendation is the limited appreciation of local culture, in general. The inability of local African leaders to discuss issues with civility and face criticism weakens the environment for change to take place. A couple specific examples include Joaquim Chiassano of Mozambique who warned fellow leaders against putting peer pressure on countries with blatant human rights abuses; and Zambia's leader in 2002 argued that peer review must not be about isolation (Akokpari 2004). In essence, penalties work if there is a culture of penalizing which exists just as the US Lacey Act in 2008 demonstrates with its increased fines for corporations (see Exhibit 9 for a chart of the US Lacey Act penalties). But without this culture, increasing penalties will not alter corruption if leaders are not holding each other accountable. This string of logic may lead one to consider the mechanisms of checks and balances, yet as we've seen from earlier examples, for every check that was instituted on chain of custody, an additional external balance was needed, placing pressure on an already meager public budget.

Some of the other recommendations that have been proposed include: curbing the demand for high rents, increasing the supply of sustainable timber, improving the incentives to enforce laws against corruption, building strong governance institutions, taxing, systematizing a forest management regime, issuing bonds, and applying voluntary control measures such as codes of conduct, certification, and trade partnership agreements. In each case, there is evidence that even these more researched recommendations fall short of their aims to reduce forestry corruption. It is true that bilateral policies and in-country legislation in place today (via trade partnership agreements) to increase legal supplies is

proving more effective at stemming corruption than yesteryear however it still takes time to transform practices on the ground. Even with sound policy in the US and the EU for legal supplies and chain of custody requirements, a rogue China trying to meet its demands without any such policies outshines any advances to keep corruption at bay (see Exhibit 11 for a graph of Chinese demand). Issuing bonds also has its ill-effects. Without ever addressing the root causes of corruption such as increased salaries of officers in the field and supportive internal checks and balances on the industry's behavior, the excessive levels of cash available through performance guarantee bonds may simply be redirected to private uses outside the view of the state. Lastly, in the case of taxation, forests demonstrate how complex solutions to forestry crime really are.

"…in some instances, civil unrest has been a better friend of forests than their conscious management."

Ivan Ruzicka in his paper, "*Taxation of Tropical Forests: A search for generalizations after half a century of trying*" finds that the current argument for taxes applied to the value chain to address profitability will lower rents and limit overuse of forests is, unfortunately, incorrect. He begins the story during plywood revolution of 1950's to 1970's where after de-colonization many new leaders understood quickly the high profitability of logging and therefore began to find ways to exploit their state owned resources and cover up any illicit dealings. This led to the focus over forest management and sustainability. The response was to tax rents however this has no effect on the supply of the timber resource being traded, merely on the profitability of the extraction activity. By definition, rents were already incorporated as a '*transaction cost*' that merchants understood (Ruzicka 2010). In fact, higher forest taxes did not change the way leaseholders operated, it merely transferred some of the logging profits from leaseholders to the State. In other words, the difference between the market price and the extraction cost was considered rent (not profits) and taxing it only shifted the way the logger behaved, no other stakeholder in the value chain was affected.

Taxes do affect the supply of the forest resource over the long run because the leaseholder can offset those higher taxes by reducing their production costs. For instance, they can carelessly log, limit their maintenance of the forest, or limit their protection of the leased resource–all cost minimizing adaptations leading to more forest depletion and less protection (Ruzicka 2010). The weak relationship

between higher taxes and lower forest degradation exists mostly because the full cost of concession management was never paid—most landowners or leaseholder did not grow the forest, it already existed, because of this the owner will trade tax income for forest decline, according to Ruzicka.

If taxing rents negatively affects or has no affect at all on the supply of forests over the long run, then some alternative must be in place for the governing authority to control the forest resource. As John Adams hinted during the formation of the US in the 18th century, overtaxing trade is equivalent to an abuse of public power. However if the resource is valued more precisely, as environmental economists are trying to do today with 'ecosystem services', then the full cost[4] of concession for the forest could be better valued and therefore paid for. Although this addresses the issue of taxation for the leaseholder's rents, it still does not address the windfall of new financial resources that the state would be bestowed at a new higher price for concessions. Those resources will still need to be redistributed and managed effectively. Based on the last 50 years of experience, where forests are managed for timber by the state, theoretical advantages of long term management and care are quickly outweighed by management inefficiency (corruption) characteristic of any bureaucracy. Therefore, forests managed by the state will lead to corruption.

Yes, good governance, stronger institutions, and a culture of doing good on behalf of society are all necessary. In the end, however, some integrated approach is required, since not all the blame can be placed on government.

Conclusions

There is significant value in forests and their relationship to development in weakly governed environments and economies and especially with the global reach of forests, the public sphere is involved since forest management directly impacts climate change. We have learned that forest corruption exists as a result of limited management and weak social structures to overseeing the 'commons'. The drivers that push corruption to the limit include the spatial aspects since large areas in

[4] Sustainable management of forests requires consideration of four main costs: 1) logging cost, 2) depletion cost, 3) maintenance cost, and 4) environmental or ecological cost. It has been noted that long term care of tropical forests is too unprofitable once costs of ensuring sustainability are incorporated. Even though environmental services, hydro regimes, biodiversity preservation, and carbon sequestration can generate income, it is not yet enough to fully compensate for all the costs listed above (mainly because our way of valuing these services is still primitive and must evolve to appreciate the true value of these services for society).

remote places far away from public scrutiny attract corrupt behavior; unknown forest inventories and management plans further add to the challenge; and weak and all together absent baselines and poor data exacerbate management efficiency. Although many national governments claim ownership rights of forests, no tradition of proper forest management and accountability exists, therefore forests are viewed as an obstacle to expand the agricultural frontier and forest land ownership rights are often unclear or inexistent. In addition, forest management at public level is granted broad discretionary powers. For instance, field officers are unsupervised and in remote places—this combination of substantial discretionary power creates an environment for illegal activity. Government salaries are also quite humble and officers must control products with high commercial value, so it is easy to find ways to turn that towards a public official's personal gain. The proliferation of regulations and permits increases opportunities for illegal activities whereby laws are passed to limit corrupt activities but operationalizing those laws never occurs. Even penalties are minimal in comparison to rewards of forest crime in Sub-Saharan Africa; they are so light they do not translate into a deterrent for forest corruption.

Taking the value chain as an analytical framework to view corruption uncovered the multitude of stakeholders, activities, and incentives that exist at each chain segment for illicit transactions to take place. One rule of thumb that we came up with is premised on Daniel Kaufmann's piece titled, "Myths & Realities of Governance and Corruption" (World Bank). In it he identifies eight myths about corruption. Myth number 7 is poignant to the timber industry and forest corruption; it states: ***"The culprit in developing countries is the public sector, which is solely responsible for shaping the inadequate business environment."*** Based on our research, this is not entirely true for forests and this led our team to reconsider how we define corruption in forests. Taking from the standard definition, we integrate markets, civil society, and the public sector into the stakeholders identified in the original corruption definition. From an outcome of poor governance, corruption involves the abuse of public office for private gain or the abuse of entrusted power for private gain. We therefore believe a new definition must be established to more holistically address corruption – since, as the saying goes, if you cannot measure it, you cannot address it. Our definition reads: forest corruption is the systemic withdrawal of power from stakeholders that limits the regeneration and balance of systems– political, economic, social, natural, and human. In other words, all stakeholders must be included in the definition to ensure that the behavior to take advantage of power doesn't surface in another area or another form of checks and balances.

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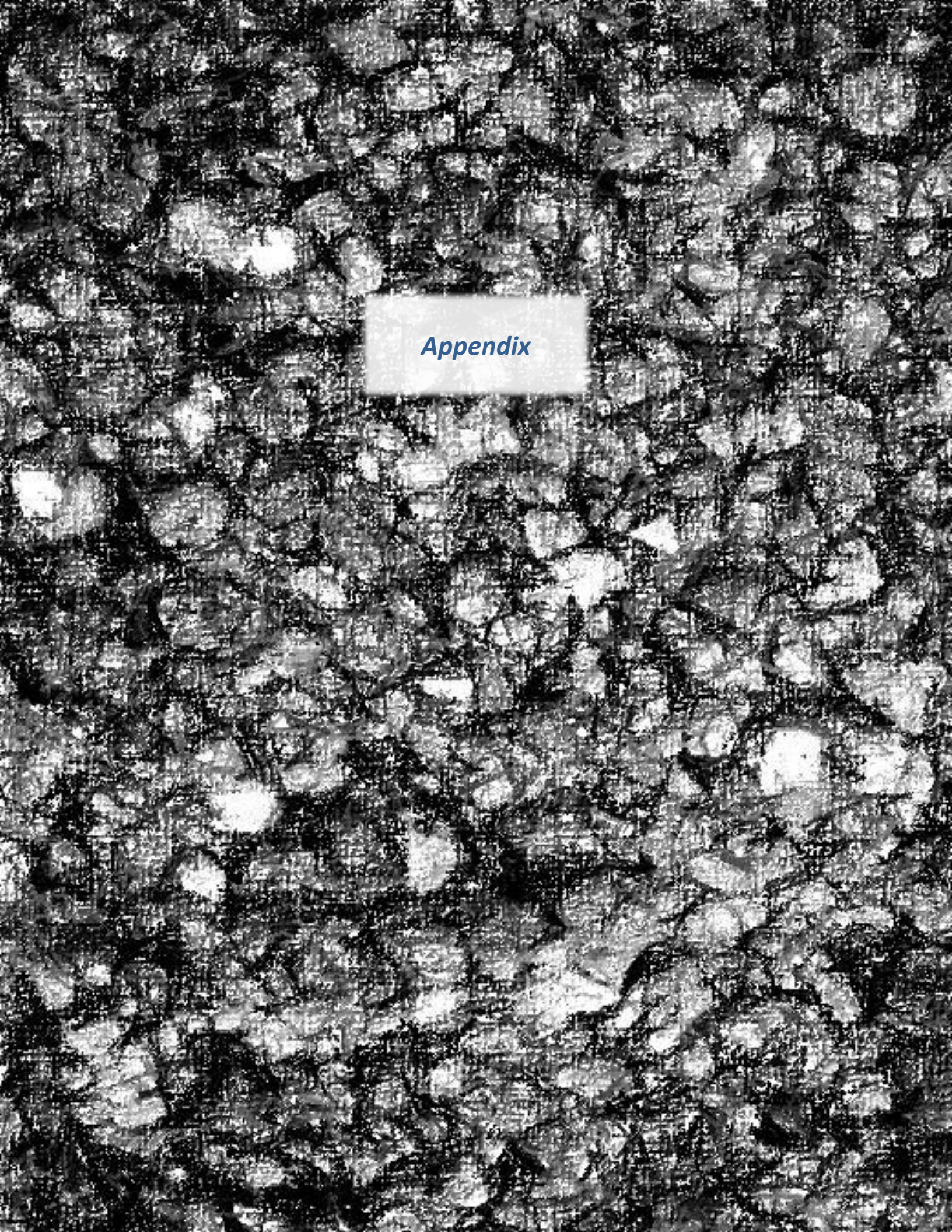
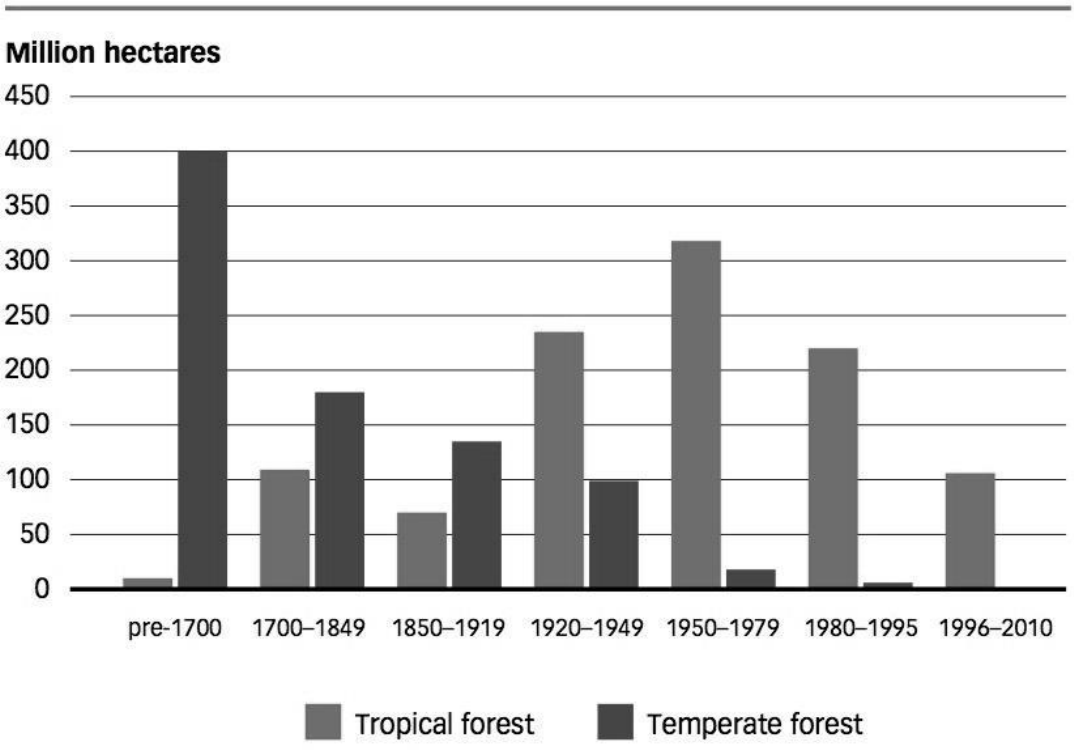

Appendix

Exhibit 1

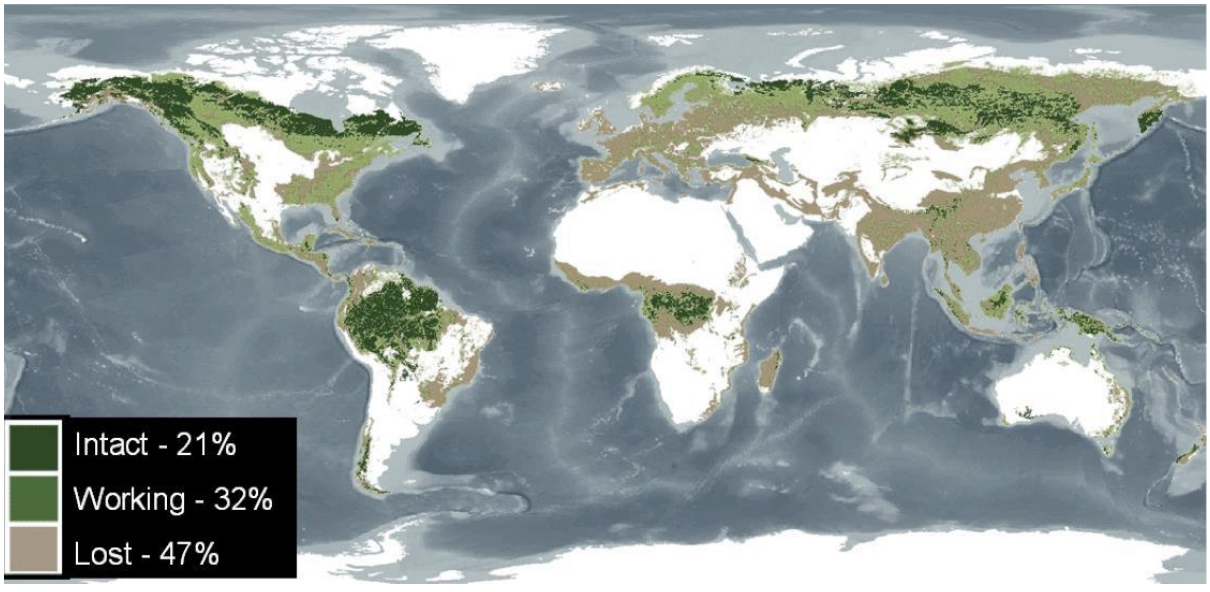
Estimated deforestation, by type of forest and time period



Source: Estimates based on Williams, 2002; FAO, 2010b.

Exhibit 2

State of the World's Forests



Source: Forest Landscapes Initiative, World Resources Institute, 2009

Exhibit 3

Estimations of maximum and minimum price, average cost, and time spent in process and inventory per board

	Farmer	Processor	Transporter	Timber Dealer	Carpenter
Maximum Revenue	$0.50	$1.00	$0.7920	$5.09	$6.62
Minimum Revenue	$0.11	$0.66	$0.0560	$2.38	$4.09
Average Cost	$0.005	$0.075	$0.0115	$2.21	$3.15
Time Spent in Process / Inventory	10-25 years	7 minutes	Depends on Distance	3 weeks - 2 years	1 week

Source: Castren and Pillai, Forest Governance 2.0

Exhibit 4

The term governance embraces five principles:

1. Transparency – which are open actions that can be scrutinized by rights holders and stakeholders;
2. Participation – where mediators ensure diverse and meaningful participation in government policy by non-state actors;
3. Accountability – is about clarifying the role of various institutions in decision-making and whether they are held accountable;
4. Coordination – is how those involved work toward common objectives related to forests; and
5. Capacity – is the government's role in giving public access to decision-making, as well as the ability of civil society to make use of this.

For forests specifically, the four key issues that **forest governance** impacts are:

1. *Forest tenure*: the broad spectrum of ownership, use, access and management rights to forests. *Must understand Property Rights to forest land, and the legal rights & responsibilities of land owner
2. *Land use planning*: the multi-stakeholder process to determine optimal land uses that benefit current and future generations, given the economic and social conditions of an area.
3. *Forest management*: the management and control of various different forests uses, including those associated with conservation and ecology, community, resource extraction and conversion for agriculture, infrastructure, or other economic activities.
4. *Forest revenues and incentives*: collection and management of revenues from forests; benefit sharing.

Exhibit 5

The EU's Response to Timber Corruption, Illegal logging, and Deforestation

In light of the serious environmental, economic and social consequences of illegal logging, the European Union published the EU FLEGT Action Plan in 2003. The Action Plan recognizes that the EU is an important export market for countries where levels of illegality and poor governance in the forest sector are most serious.

Taken as a single market, the EU is one of the largest consumers of timber products in the world. The behavior of European companies and governments purchasing wood and wood products from suppliers in Africa, Asia or South America has a significant impact on illegal logging: from buying illegal wood, companies and consumers are creating profitable markets for illegal loggers and undermining efforts to enforce forest law in many wood-exporting countries. The belief is that If buyers actively prefer to purchase wood from producers that comply with local law, pay for the timber they fell and act responsibly towards local people and the environment, this will help to tackle illegal logging.

The EU FLEGT Action Plan sets out actions to prevent the import of illegal wood into the EU, to improve the supply of legal timber, and to increase demand for wood coming from responsibly managed forests. The long-term aim of the Action Plan is sustainable forest management.

The specific measures of the Action Plan focus on seven broad areas:

1. Support to timber exporting countries, including action to promote equitable solutions to the illegal logging problem.
2. Activities to promote trade in legal timber, including action to develop and implement Voluntary Partnership Agreements between the EU and timber exporting countries.
3. Promoting public procurement policies, including action to guide contracting authorities on how to deal with legality when specifying timber in procurement procedures.
4. Support for private sector initiatives, including action to encourage private sector initiatives for good practice in the forest sector, including the use of voluntary codes of conduct for private companies to source legal timber.
5. Safeguards for financing and investment, including action to encourage banks and financial institutions investing in the forest sector to develop due care procedures when granting credits.
6. Use of existing legislative instruments or adoption of new legislation to support the Plan, including the EU Timber Regulation.
7. Addressing the problem of conflict timber.

Case Analysis—Is it working?

Voluntary Partnership Agreements or VPA's incorporate a national legality assurance system that defines what constitutes legal timber, verifies compliance with this definition, traces products from forest to export, licenses exports to provide assurance to markets, and independently checks all elements of the system. Yet all this simply increases transaction costs and reduces attractiveness of the EU market. For instance, when we consider the GDP growth of forests we see that China is causing a surge in demand, eliminating any gains we found with the EU FLEGT program. WRI states that "*failing to tackle problems of weak institutional capacity and coordination, accountability, transparency, and public participation may exacerbate current conflicts over the use of forest resources and risk creating perverse outcomes for forest dependent people, forest ecosystems, and the global climate.*" In other words, the EU FLEGT program is not addressing the fundamental drivers of forest crime and corruption. It simply masks or veils the timber corruption issue in a policy that appears to appease commercial timber interests. In particular, since Illegal timber is defined by the laws of the country in which the timber is being harvested, determining legality is difficult and logs can simply cross the border so without traceability systems or proper governance in place leakage occurs (where focusing on one area leads to damages in another). Using bi-lateral trade agreements when multi-lateral ones are necessary exacerbates the forest corruption issue.

Exhibit 6

Congo Basin Forests at a Glance

The Congo Basin spans six countries: Cameroon, the Central African Republic, the Democratic Republic of Congo, the Republic of Congo, Equatorial Guinea, and Gabon. It contains about 70% of Africa's forest cover and of the Congo Basin's 530 million hectares of land, 300 million are covered by forest. More than 99% of the forested area is primary or naturally regenerated forest as opposed to plantations, and 46% is lowland dense forest. Industrial logging represents an extensive land use in the area, with about 44 million hectares of forest under concession (8.3% of the total land area), and contributes significantly to revenues and employment. Approximately 60% of the Congo Basin lies in the DRC; 40 million of the 67 million indigenous people depend on the forest for their livelihood; officially, forestry only generates 0.7% of GDP (but we all know this figure is severely underestimated due to corruption and limited transparency) (FAO 2012).

Unlike other tropical regions, where logging activities usually entail a transition to another land use, logging in the Congo Basin is highly selective and extensive and production forests remain permanently forested. The Congo Basin forests are home to about 30 million people and support livelihoods for more than 75 million people from over 150 ethnic groups who rely on local natural resources for food, nutritional health, and livelihood needs. These forests provide crucial protein sources to local people through bush-meat and fisheries. Forest products, whether directly consumed or traded for cash, provide a substantial portion of local people's income.

These forests also perform valuable ecological services at local, regional, and global levels. Local and regional services include maintenance of the hydrological cycle and important flood control in a high-rainfall region. Other important regional benefits include climate regulation, cooling through evapotranspiration, and buffering of climate variability. The forests also house an enormous wealth of plant and animal species including threatened animals such as the lowland gorilla and chimpanzee. Globally, Congo Basin forests represent about 25% of the total carbon stored in tropical forests worldwide, mitigating anthropogenic emissions (de Wasseige et al. 2012).

Exhibit 7

What is REDD?
REDD is an acronym for "Reducing Emissions from Deforestation and Forest Degradation". Its primary aim is *"to make forests more valuable standing than they would be cut down, by creating a financial value for the carbon stored in trees. Once this carbon is assessed and quantified, the final phase of REDD involves developed countries paying developing countries carbon offsets for their standing forests."* According to its designers within the UN and non-governmental stakeholders, REDD is the most cost effective way to stabilize CO2 (GHG) emissions (and prevent rise of temperatures by 2 degree Celsius).

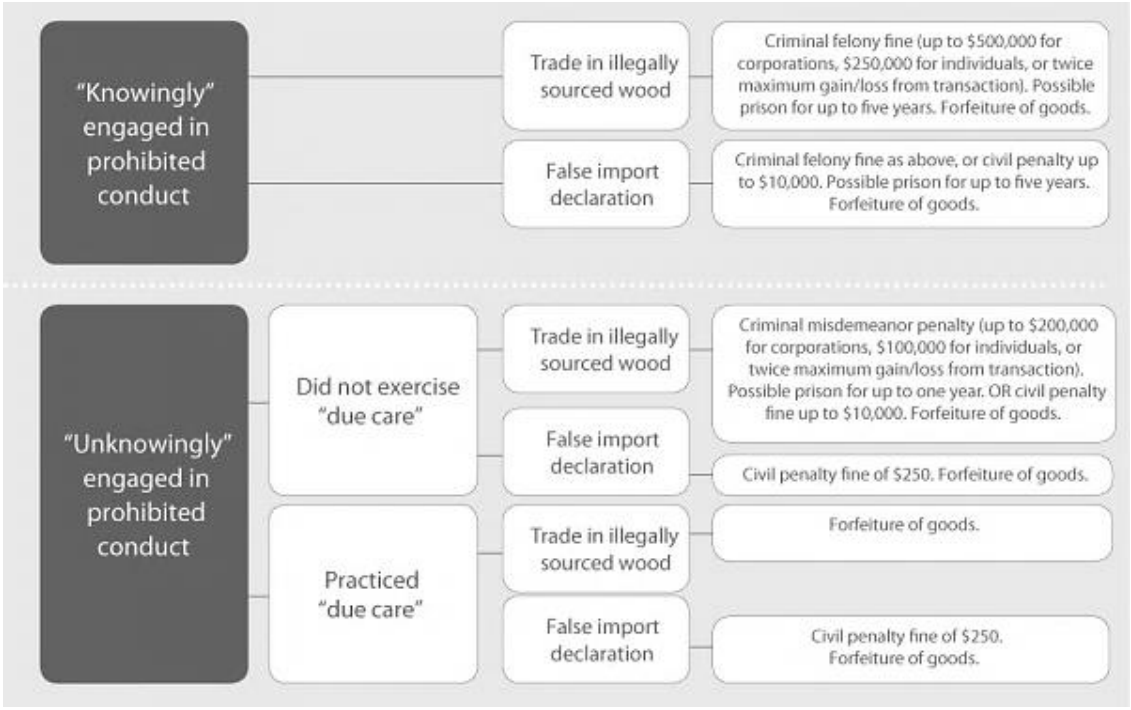
The program intends to include the private sector as part of the solution to the perceived problem of GHG by providing the kinds of market signals, mechanisms and incentives to encourage investments that manage and conserve the world's nature-based resources rather than mining them. So it is about making money and conserving the planet too and if REDD can be structured right, the money will be made not just by carbon traders, but also by developing countries and communities for providing the forest-based carbon storage service. It is predicted that financial flows from North to South for GHG reductions from REDD could reach up to US$30 billion a year—funds that can be invested in renewable energy projects to assist the two billion people without access to electricity or hospitals or new schools
(UN-REDD Program 2009).

Is REDD Working?
The question of REDD's ability to offset GHG has always been a question. Has the program itself brought more awareness about the issue and attempted to find concrete says of addressing climate change? Absolutely. However, naysayers believe that the system for international carbon markets still continues to produce the toxic pollution that contributes to higher GHG's and fails to address on the fundamental issues of land tenure rights which could help address both emissions and deforestation. The stakeholders who are hostile to REDD include large environmental organizations, forest dependent communities, environmental justice advocates, Indigenous organizations, and in general the global South social movements. But why? Several plausible reasons remain either unaddressed or not taken into consideration in the design of the program (Global Justice Ecology Project 2010). These include:

- REDD restricts access to forests for livelihoods and cultural practices since only 9% of the world's forests are legally owned by forest-dependent and indigenous communities
- REDD reduces biodiversity since their definition of forests is vague enough to include monoculture tree plantations (such as oil palm, pine, and eucalyptus), as well as clearcuts (termed "temporarily unstocked areas") and genetically engineered (GE) trees
- REDD degrades livelihoods since the working definition of forest degradation includes activities like shifting cultivation, foraging, collecting medicinal plants, and accessing sacred sites—activities mostly of forest-dependent communities; yet science has shown that those who can best protect forests are those who live in them
- REDD confuses carbon offsets as a solution to climate change where the program isn't stopping the pollution, just limiting it
- Commoditizing results in less protection since by turning forests into carbon sinks and giving them enhanced economic value it can be expected to encourage private investors to buy up lands that do not have a clear title, leading to displacement of forest dependent communities
- REDD forces subsistence communities into the cash economy
- REDD creates perverse incentives
- REDD is not rights-ready (Global Justice Ecology Project 2010)

Exhibit 8

Exhibit 9



Source: Environmental Investigation Agency

Exhibit 10

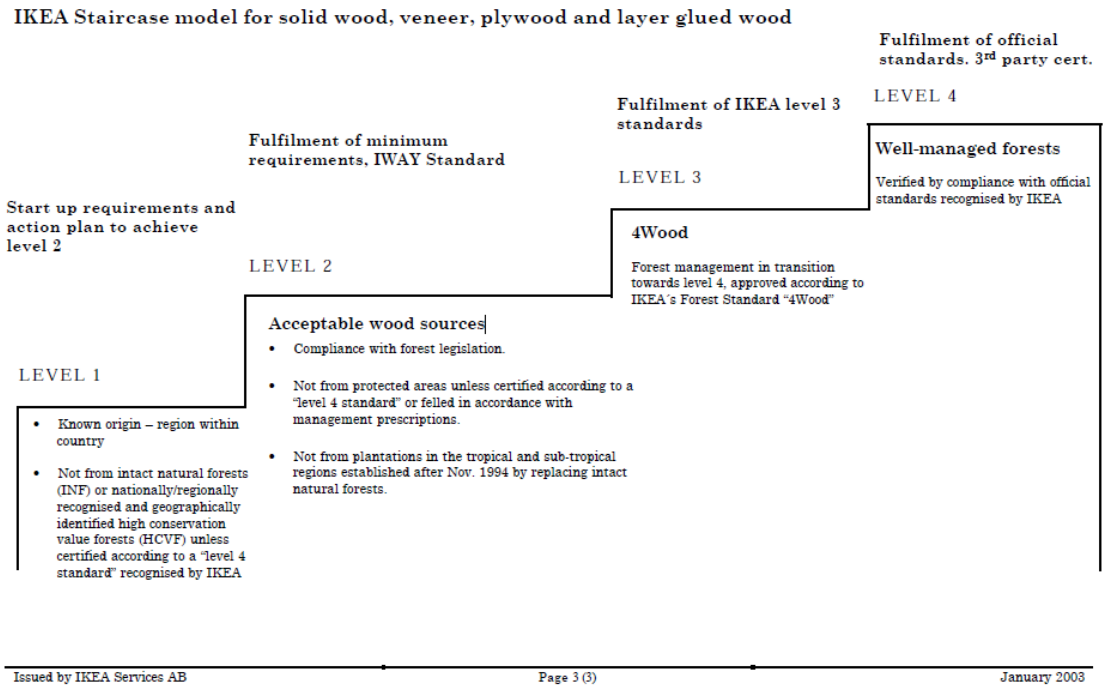
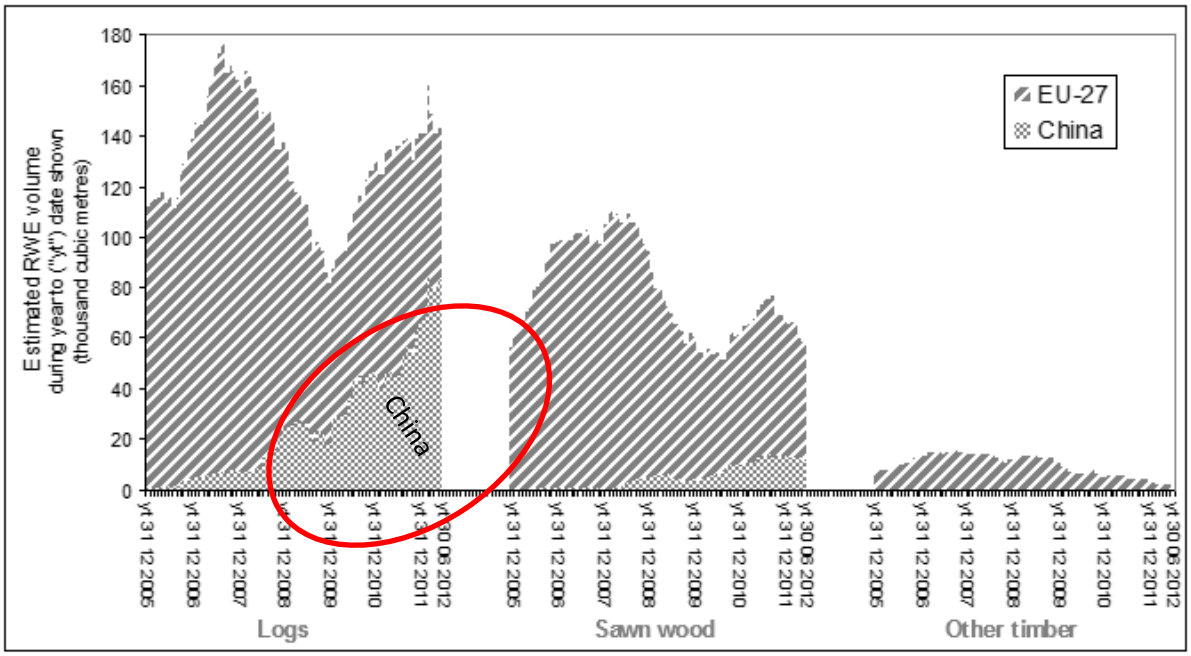


Exhibit 11



Source: (Global Witness 2012)