Illegality in the Food We Eat

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The Scope

In a 2016 operation coordinated across 57 countries INTERPOL seized more than 10,000 mt and one million liters of hazardous fake food and drink.[i] Illegal trade like this affects all categories of food and all regions of the world. Illegality in the food we eat is an underappreciated problem that will only get worse as the human population grows, demand for food increases, and the climate changes. It needs systematic attention of all those involved from commodity producers, traders and marketers to retailers and brands, national governments and, most of all, the public.

Illegality in the food we consume has only been increasing, with the incidences of food adulteration or "food fraud" having risen 60% since 2010.[ii] Estimates of the costs of product counterfeiting vary because of its illegal nature and the difficulty in obtaining robust figures. Estimates range from less than $30 billion in the early 1980s to $200 billion by the end of the 1990s to $600 billion in recent years, with some projecting the problem will soon cost nearly $1.8 trillion.[iii] Each year, lost sales, product recalls, and other consequences of food fraud are estimated to cost legitimate retailers from $10- $15 billion.[iv]

Unfortunately, illegality is not confined to the food itself but also to how it is produced along the entire production chain. Starting with the land, illegal conversion of tropical forests for agro-commodities (beef, leather, soy, palm oil, tropical timber, pulp and paper, and plantation wood products) is estimated at $61 billion per year.[v] And extending to trade, the World Bank estimates the economic loss from illegal trade to be approximately US $10 billion annually, and the losses due to tax evasion and royalties on legally sanctioned logging alone to be approximately US $5 billion annually.[vi]

Illegality in production is found in most globally traded commodities
See Appendix 1 for further examples

- Estimates of the extent of illegal, unreported and unregulated (IUU) seafood by country/region reveal that from 13% to 31% of reported catches worldwide are IUU, and over 50% in some regions. This IUU catch is valued at between $10 and $23.5 billion per year.[vii]
- Eighty percent of all palm oil concessions in Indonesia are illegal.[viii]
- Almost half (49%) of total tropical deforestation between 2000 and 2012 is due to illegal conversion for commercial agriculture.[ix]
- Nearly half (49%) of all agricultural commodity products produced on illegally deforested lands were destined for export markets.[x]

- In April 2012, The Guangdong Sugar Association estimated that illegal sugar smuggled into China totaled about 500,000 mt in the first quarter of the year.[xi]
- More than 70% of all hired U.S. farm workers are foreign-born, mostly from Mexico, and about half are undocumented.[xii]

WWF's Interest

The world's largest conservation organization is exploring how best to engage with the issue of illegality in the production of food and soft commodities (agriculture, forestry and fisheries sectors). This interest stems from the impacts illegality has on WWF's mission to conserve nature and reduce the most pressing threats to the diversity of life on Earth.

Illegally produced commodities pose risks to all stakeholders, including governments, traders, retailers, brands, laborers and consumers. It also is linked to increases in deforestation, biodiversity loss, resource degradation and depletion, water quality and overfishing.

Illegality is an unrecognized but critical threat because the rapidly growing need for food and soft commodities will only increase. Indeed, the global extent of crop-land is currently expanding faster than at any time in the past 50 years. One billion ha of additional land, mostly in developing nations, would need to be converted to agriculture by 2050 to meet projected demands—a land area larger than Canada.[xiii] This land clearing takes place largely in the tropics where an estimated 71% of all tropical deforestation between 2000 and 2012 was caused by the expansion of commercial agriculture [xiv]

Illegality plays a key part in hampering the growing attempts to feed the world's people:

- In terms of climate change, the emissions caused by illegal conversion of tropical forest for large-scale commercial agriculture during 2000-2012 was an average of 1.47 gigatons of CO2 per year—the equivalent of one-quarter of the annual fossil fuel-based emissions of the EU.[xv] Of this, 0.72 gigatons were associated with commodity exports.[xvi]
- Illegal production undermines legal production with better producers undermined and less interested in doing better if the bar is not level for everyone.
- Illegality is associated with most of the poorer performing producers and only further reinforces their poor performance.

It is essential to understand the extent of illegality, its overall impacts on the environment and society, its impact on the economies of both exporting and importing countries, and the precise nature of the legality issues involved. Only then can all interested parties develop the most appropriate and efficient ways to insure enforcement of laws as well as more traceability and transparency in global supply chains.

WWF wrote this paper as the first step in developing a framework for decreasing illegality, and thereby reduce the pressing threats that it poses to the diversity of life on

Earth. The paper lays out the case for a greater examination of illegality in food commodities based on eight globally significant products produced in one or two countries. The data presented in the case studies are those that are publicly available and are not meant to be comprehensive, only illustrative. A full accounting of illegality in each of the commodity chains would require a more studied approach to evaluating and gathering data, and the cooperation of many partners.

The paper has two objectives: 1) stimulate both companies and national governments to better determine what illegal activities are taking place and develop ways to eliminate them; and 2) build a greater appreciation of the vital need to understand and address illegality by citizens, consumers, companies, and governments.

Data on illegal activities of all kinds are difficult to obtain, and virtually never from the entity whose activities are being examined. There are a variety of third party organizations with interests in specific types of illegality who publish the results of their work and as a result the data are not evenly available across all categories of illegality. In the case of food and soft commodities these groups have particularly focused on food safety and illegal labor and therefore data are better for those two categories.

To conduct an analysis of illegality in food production requires using data from a wide variety of sources covering a range of years. For this paper, data were sought from the most reliable and most current sources. Only a small portion of the direct illegality data have been peer-reviewed. Data for all the variables being measured were rarely available for single commodities in a single, recent year. Therefore, data that were as recent as possible were combined across sources and across years. Definitions of illegality vary between organization and actor so we have concentrated on the five types of illegality described above. The data presented in the paper are, simply put the "best available" and readers with better data are invited to contribute them to increase the power of the analysis. The purpose is not to be absolutely correct on the illegality calculations, but to use the best available data to make the case for the importance of considering illegality as an environmental crime. The data have been reviewed by subject experts in the World Wildlife Fund as well as the Thought Leader Group, an informal group of experts advising the WWF-US Market Institute.

Earlier versions of these analyses have been widely presented and widely discussed at conferences, meetings and seminars in the last year to over 30,000 people by the first author, Jason Clay (Executive Director, the Markets Institute at WWF). Specifically, the analyses have been presented to companies, corporate associations and platforms and consultants, including 250 people at the Grocery Manufacturers Association and Food Marketing Institute annual conference in August 2016 in New Orleans and to the Consumer Goods Forum annual meeting in Paris in October 2016. The analysis was subsequently sent to the organizers of both meetings who in turn forwarded it to more than 400 meeting attendees and others in the associations who had expressed interest. Despite considerable interest in the information at the conferences, after the report was sent out, requests for feedback produced no responses. Subsequently the authors were told that upon advice from legal counsel, businesses were told that any response would

suggest knowledge of illegality and therefore was discoverable under US law. However, there is still great interest in the analysis, and some reviewers have said that making the information public will put the issue squarely in the public domain, opening up a pre-competitive discussion of the subject, creating awareness and building consensus about the priority illegal practices as well as the best ways to address them.

What is Illegality?

The simplest definition of illegality is any product or raw material produced in a manner contravening written laws, policies, and regulations of the country of origin. Illegality can take place at any stage in the supply chain: resource access, production, trade, processing, distribution and manufacturing. The literature suggests that there are five types of illegality:

1. Resource rights, including legal concessions: the producer does not have the right to harvest, catch or produce in the area where production is occurring.
2. Labor rights: the producer has slave or bonded labor, employs people who are not legally allowed to work or underage, or otherwise violates employees' rights.
3. Other laws: the producer does not meet other legal requirements (e.g. fails to comply with Brazil's Forest Code or riparian area legislation, uses illegal inputs, transships to another country, doesn't pay taxes, etc.).
4. Fraud: deliberate dilution or substitution of either illegally obtained or falsely marked/identified products.
5. Corruption: the producer bribes or otherwise subverts the system to produce products illegally or to enter his/her product into existing trade flows.

Category of Illegality	Example
1. Resource Rights	Placing plantations on indigenous lands without free, prior, informed consent
2. Labor Rights	126 goods plus pornography are produced globally by child labor; 55 goods plus pornography are produced globally by forced labor [xvii]
3. Other Laws	Logging beyond concession boundaries, hacking government websites to obtain transport permits, laundering illegal timber by mixing it with legal timber [xviii]
4. Fraud	Falsification of logging permits
5. Corruption	Bribes to obtain illegal aquaculture permits

By its very nature, illegality in food commodities is difficult to measure. In part, this is because those who commit fraud do not intend to cause physical harm and want to avoid detection and therefore most fraud goes undetected. Since fraud takes place to allow illegal monetary gain, it is the opportunity or feasibility rather than the food type that is targeted.[xix] In addition, fraud associated with soft commodities is often associated with other forms of crime including murder, smuggling, money laundering, tax evasion, piracy, corporate fraud and trafficking of drugs.[xx]

There is often a suite of fraudulent activities that are perpetrated together. For example, in the tropical logging industry there is often high-level corruption within the issuance of licenses for converting forests for commercial agriculture, a failure to maintain mandated areas of forest reserves, the illegal use of fire to clear forests, the clearance of forest outside legal concession boundaries, lack of consultation based upon the principle of Free, Prior and Informed Consent (FPIC), and unfair compensation to communities in concession areas.[xxi]

Illegality poses significant risks and challenges for stakeholders across the value chain:

- For companies, it is a significant reputational, legal and business risk.
- For importing governments, it undermines the rule of law and reinforces corruption.
- For multinational companies that purchase only legally produced commodities, illegally produced products in competitor's products undermine prices and profitability.
- It poses health risks and ethical challenges for consumers.
- In exporting countries, particularly LDCs, illegality is linked to environmental degradation, social instability and conflict.

Illegality in Select Commodity Chains

Beef: Brazil and US

	Resource rights	Labor rights	Other laws	Fraud	Corruption
Beef Brazil & US		XXX (Brazil, US)	XXX (Brazil)		

Nature, extent and size of production and trade
In 2015, the world produced 60 million metric tons of beef of which the US was the largest producer (18.5%) and Brazil second (15.7%).[xxii] In terms of beef exports 9.537 million mt were exported with Brazil, the third largest exporter with 1.705 million mt and the US fourth with 1.028 million mt.[xxiii] The Brazilian herd expanded 200% between 1993 and 2013 reaching a total of nearly 60 million head. [xxiv] Much of this expansion was made possible by the increase in pasture due to deforestation rather than the intensification of production. The US produced 11.7 million mt of beef in 2013.[xxv] In the US 39% of the nation's beef cattle are produced in the Midwest region.[xxvi]

Nature and extent of documented illegality

In Brazil illegality in beef production has been documented in land clearing for pasture, in pasturing, selling, slaughtering as well as in labor practices. The market chain is complicated with animals being moved from cow-calf producers (in the recent past from producers in regions where trade is not supposed to occur or even from other Amazonian countries) to finishers and on to slaughterhouse, moving from illegality to legality in the process. Large segments of the cattle supply chain are not monitored or tracked under the current implementation.[xxvii] Illegal clearing of forest to create pasture is a significant source of illegality in production as is production on indigenous lands.[xxviii] Estimates of such illegal deforestation up to 2012 varied between 73% and 90% with a calculated average of 81.5%.[xxix] During the first nine months of 2012, 26 companies bought and slaughtered almost 56,000 head of cattle raised illegally.[xxx] The cattle industry in Brazil uses both child labor and forced labor.[xxxi] In Brazil, cattle ranching accounts for over 60% of the companies on the "dirty list" of groups using forced labor.[xxxii] Finally, illegality in the beef industry is echoed in the use of other cattle products in pet food, gelatin for yogurt, and the extensive use of leather for shoes, apparel and automobile seat covers.[xxxiii]

In the beef industry in the US the major source of illegality in production is with labor. Although statistics are not available for the beef industry itself, the average percentage of illegality for all farm workers has been estimated between 48 and 55%.[xxxiv] Another study estimated that 50% of all hired workers in crops and livestock farming and 25% in meat processing are undocumented or unauthorized.[xxxv] These workers often suffer abuse that itself is illegal.[xxxvi] The Midwestern US relies on immigrant labor for year-round animal care and 46% of the roughly 800,000 farmworkers are in the livestock production sector. In 2009 unauthorized foreign workers made up 50% of the workforce, up from 10% in 1989.[xxxvii]

Extrapolation of this documented illegality to global markets

The world exports more than 9.5 million mt of beef.[xxxviii] Brazil exports 1.705 million mt equaling 17.8% of global trade.[xxxix] In terms of production, if Brazil produces 15.7% of the world's beef and if 70% (the lower estimate) is produced illegally in Brazil (assuming Forest Code violations are found at equivalent levels throughout Brazil) then some 11% of the world's beef production is produced illegally. Because Brazil accounts for a larger proportion of global beef exports, however, 12.46% of globally traded beef (17.8% x 70%) is produced illegally in Brazil Some 70% of the beef consumed nationally would likewise be considered illegally produced.

In terms of beef produced in the US Midwest region: if 39% of the US' beef is produced in the Midwest and 50% of the labor is illegal then 19.5% of the US' beef is illegal. The US exports 1.028 million mt of beef, or 10.8% of the total global export.[xl] And, if US beef is 10.8% of all global beef exports, then 2.1% (10.8% x 19.5%) of all globally traded beef is produced illegally just considering illegal labor in the US.

Nature of impact on environmental, social and economic dimensions

The global environmental and social risks of beef production include: land conversion, community displacement, greenhouse gas emissions, air quality, overgrazing and loss of pasture biodiversity, land required for cattle feed, global food security through directing of human food grains to cattle, food safety, water take and nutrient loading in runoff, loss of riparian areas, disease, animal health and welfare, medicines and chemicals used, health and safety risks, and poor working conditions.[xli]

Cattle ranching is responsible for about 80% of all deforestation in the Amazon region.[xlii] Cattle ranching has been the primary driver of deforestation in the Brazilian Amazon and has seen tremendous growth in the past decade.[xliii] Expansion of cattle pastures continues to be a major cause of deforestation, and pasturelands now occupy at least 60% of cleared land in the Brazilian Amazon.[xliv]

Steps already taken to address illegality
Brazil's three largest meatpacking companies agreed to stop purchasing directly from ranches that cleared more forest than legally permitted. They also signed a more stringent agreement with Greenpeace under which they committed to buy only from direct suppliers that reduced deforestation to zero.[xlv] Large retailers and brands have also made commitments to eliminate deforestation at all stages of the Brazilian beef supply chains.[xlvi]

<u>Palm oil: Indonesia</u>

	Resource rights	Labor rights	Other laws	Fraud	Corruption
Palm oil Indonesia	XXX	XXX	XXX	XXX	XXX

Nature, extent and size of production
Indonesia produced 33 million mt of palm oil in 2014-15[xlvii], exporting 26.4mmt of that.[xlviii] Global production in that same year was 61.6 million mt with Indonesia producing 53.5% of the total.[xlix] In 2014 it produced 31.5 million mt of which it exported 21.7 million mt (69%). Due to increased global demand and higher yields, Indonesian palm oil cultivation has expanded significantly. Almost 70% of Indonesia's oil palm plantations are located on Sumatra.[l] Between 2000 and 20-10, Indonesia lost at least 1.6 million ha of forest to oil palm concessions. Most of this was in Kalimantan.[li]

Nature and extent of documented illegality
Illegality in palm oil production occurs in a number of ways from forest clearing to labor use. The most common illegalities in establishment of oil palm plantations are: clearance without legal permits, clearance on deep peat, and use of fire to clear land.[lii] About 20% of current fire hotspots in Indonesia come from oil palm concession areas.[liii] Indonesia's government has outlawed the use of fire to clear land but burning continues.

Many plantations are being or have been established illegally or have been expanded illegally with one study estimating that 80% of deforestation for establishment of palm

plantations was illegal.[liv] Other studies have arrived at similar numbers of illegality: 80% and 89%.[lv] Illegal clearing has caused destruction in a national park: over half of the Tesso Nilo forest complex, home to tigers and elephants, has been converted to oil palm.[lvi] Legal palm fruit is commonly mixed with fruit from illegal plantations.[lvii] Another source of illegality is the illegal sale of timber from forests cleared to establish oil palm plantations.[lviii]

In 2011, one organization identified 660 land disputes between palm oil companies and local communities in Indonesia though others have estimated the number as closer to 1,000.[lix] Labor conditions in the palm oil commodity chain have been largely condemned for including exposure to hazardous chemicals, long-term abuse of temporary contracts, torture, killing, abduction or arrest and destruction of crops and houses.[lx] Among the estimated 3.7 million workers in the industry are thousands of child laborers and workers who face dangerous and abusive conditions.[lxi] Debt bondage is common, and traffickers face few sanctions from business or government officials.[lxii] There are uncorroborated reports that as the price of palm oil increases it has been diluted with other cheaper substances including diesel.

Extrapolation of this documented illegality to Indonesian and global markets
Estimates are that within Indonesia 80% of palm oil is produced illegally. Globally, Indonesia produces 55.6% of the world's supply of which 80% is produced illegally[lxiii] making 44.5% of the world's supply of palm oil produced illegally.

Nature of impact on environmental, social and economic dimensions
Loss of native forest due to palm plantations has impacted biodiversity as well as native peoples: an estimated 60-90 million people in Indonesia depend on the forests for their livelihoods.[lxiv] The global environmental and social risks of palm oil production include: land conversion, greenhouse gas emissions, community displacement, soil erosion and health, mill effluent discharge, agrochemical use, poor working conditions, importation of labor and effect on smallholders.[lxv]

Steps already taken to address illegality
In 2004 a multi-stakeholder group (including producers, NGOs, retailers and brands) launched the Roundtable on Sustainable Palm Oil (RSPO) designed to develop and implement global standards for the entire supply chain of palm oil to ensure economic, environmental and social sustainability.

The Indonesian government supported the launch of the RSPO that is intended to ensure that production in the country meets legal requirements. And with production coming on line faster than markets are expanding the government has proposed a moratorium on the establishment of new plantations. It should be impossible for an illegally cleared concession to ever become legal – absent the government declaring it so.

<u>Pulp and paper: Indonesia</u>

	Resource rights	Labor rights	Other laws	Fraud	Corruption
Pulp and paper Indonesia	XXX		XXX	XXX	

Nature, extent and size of production
In 2015 Indonesia produced 6.7 million mt of wood pulp for paper, and 10.2 million mt of paper and paperboard. The country exported 3.39 million mt of pulp, and 4.09 million mt of paper and paperboard, accounting for 6% of global trade in pulp for paper, and 4% of global trade in paper and paperboard.[lxvi] The industry has grown significantly in recent years. While the industry is based increasingly on plantations, fiber is also used, primarily from wood procured from land where forests are being converted to pulp or palm oil plantations. The sector comprises large integrated mills in Sumatra close to their fiber source and paper mills in West and East Java.[lxvii]

Nature and extent of documented illegality
Illegality is found in the pulp and paper commodity chain from forest clearing to manufacturing. Large volumes of timber to feed the mills come from illegal, unlicensed land clearance, particularly from clearing for oil palm plantations. Due to illegality in how companies acquire rights over land and forests, much of the timber harvested under apparently legitimate permits is also illegal – an estimated 80%.[lxviii] A rate of illegality of 80% has also been calculated for Indonesian pulp and paper by other researchers.[lxix]

Studies at mills and tests of their products have shown inclusion of timber species that are illegal to cut and whose trade is banned by CITES. Specific products from these mills – ranging from copy paper to tissue, books and packaging – were confirmed through independent testing to contain fiber from these controlled species. Import of such products into the US is banned under the Lacey Act[lxx] and similar legislation in the EU.

Indonesian authorities have routinely violated the rights of forest-dependent communities in allocating land use and setting forest industry concession boundaries.[lxxi]

Extrapolation of this documented illegality to global markets
Previous research suggests that a considerable amount of pulp and paper produced in Indonesia is produced illegally. In recent estimates, 80% of total production is thought to be produced illegally.[lxxii] Globally, if Indonesia is 6% of global exports for pulp, and 4% of global exports for paper and paperboard, then 4.8% of global exports of pulp and 3.2% of paper and paperboard are not produced legally in the country of origin.

Nature of impact on environmental, social and economic dimensions
The global environmental and social risks of pulp and paper production include: irresponsible forestry practices and habitat conversion, community displacement, timber rights, loss of ecosystem services, illegal and untraceable products, greenhouse gas emissions from production and milling, health and safety risks, soil erosion and health,

agrochemical use, water discharge from mills and poor and dangerous working conditions.[lxxiii]

Steps already taken to address illegality
Indonesia's leading trade associations and companies involved in exporting wood-based products pledged support to Indonesia's national timber legality and traceability standards and a commitment to reforest.[lxxiv] Progress towards these commitment is uneven and documentation is contested. Indonesia and the EU have also entered into a Voluntary Partnership Agreement to address illegal logging.[lxxv]

Cocoa: Côte d'Ivoire

	Resource rights	Labor rights	Other laws	Fraud	Corruption
Cocoa Côte d'Ivoire	XXX	XXX	XXX		

Nature, extent and size of production
Seventy percent of global cocoa bean production comes from West Africa.[lxxvi] Côte d'Ivoire is the world's largest cocoa producer accounting for over 40% of world production by weight[lxxvii] and 10% of the country's GDP.[lxxviii] In 2014 exports of cocoa beans from Côte d'Ivoire accounted for almost 25% of the country's total exports in dollars.[lxxix] In Côte d'Ivoire, more than 2.4 million ha of land are devoted to cocoa plantations.[lxxx] In the 2014-15 season Côte d'Ivoire produced some 1.8 million tons, about 40% of world supply.[lxxxi]

Nature and extent of documented illegality
Illegality in the cocoa commodity chain includes both plantation establishment and labor standards. At the current rate of deforestation, Côte d'Ivoire could lose its entire national forest cover within the next two decades. A major driver of this deforestation is cocoa production.[lxxxii] Recent research suggests that over 70% of illegal deforestation is associated with establishing new cocoa plantations. An estimated 195,600 tons of cocoa come from inside national parks and protected forest.[lxxxiii] This figure comprised roughly 10.8% of Côte d'Ivoire cocoa production in 2014. Cocoa is the major crop grown inside national parks and forest reserves with plantations documented in 20 of 23 surveyed protected areas. Cocoa comprised 93% of the illegally grown agricultural products in these protected areas and covered 74% of the total surveyed protected areas. Seven of the areas have been completely converted to farms. As a result of illegal cocoa production, these protected areas experienced a significant to total loss of primate species.[lxxxiv]

It is estimated that 70% of illegal deforestation is related to planting cocoa, with 11% of the country's cocoa now produced within national parks.[lxxxv]

Further, a recent survey of West African cocoa production found that 2.1 million children had been engaged in inappropriate forms of child labor in Côte d'Ivoire and Ghana

combined, and that number had increased 21% since a previous survey five years earlier. Almost all of those children - 96% - were found to be involved in "hazardous activity."[lxxxvi] There are no accurate statistics but one report gave the number of child slaves on plantations in Côte d'Ivoire as 15,000.[lxxxvii] The number of children reported to be performing dangerous tasks fell by 6% in Ghana but jumped by 46% in Côte d'Ivoire.[lxxxviii] In fact, despite efforts of the government to curtail child labor, it has increased in each of the three, five-year studies undertaken since 2000. It was estimated that in 2013/14 some 1.2 million child laborers work in the cocoa industry in Côte d'Ivoire, with some 1.15 million of those children performing hazardous work.[lxxxix]

Extrapolation of this documented illegality to global markets
An estimated 10.8% of cocoa produced in Cote d'Ivoire comes from inside national parks and protected forests. As the country produces 40% of the world's cocoa, this means 4.3% of the world's cocoa is illegally produced inside national parks and protected areas in Cote d'Ivoire alone.

While 70% of illegal deforestation in the country is to plant cocoa, there is no way to convert the illegal deforestation to current cocoa production at this time.

Similarly, no definitive statements can be made about the prevalence of child labor in the country unless we know how much other labor is used in production. However, it appears that there is about 1 child laborer for every two ha of production. There are 2.4 million ha of cocoa production in the country and 1.15 million child laborers. Even if children only are involved in a quarter to half of production that would still implicate 10-20% of global exports.

Nature of impact on environmental, social and economic dimensions
Clearing of native forest for cocoa production in Côte d'Ivoire has reduced the old-growth forest by 75%.[xc] Children are being trafficked into Côte d'Ivoire to work in the industry and are not attending school regularly and exposed to hazardous working conditions

Steps already taken to address illegality
Most companies are relying on third party certification and standards program to improve production, but to date this is not working. Illegality is increasing. Some companies have established sustainability cocoa programs.[xci] And, the government has not reduced child labor. Recently, however, the government has evicted more than 20,000 cocoa producers from within national parks and protected areas.[xcii] In addition, the government has made pledges to remove deforestation from cocoa production.[xciii]

<u>Shrimp: Thailand</u>

	Resource rights	Labor rights	Other laws	Fraud	Corruption
Shrimp Thailand	XXX	XXX	XXX	XXX	XXX

Nature, extent and size of production
The vast majority – some 99% - of the shrimp produced for export from Thailand is farmed.[xciv] Total 2015 production of farmed shrimp in Thailand was 260,000 mt, an increase from 2014.[xcv] An estimated 99 per cent of Thailand's farmed shrimp is exported with shrimp produced almost exclusively for consumption for Thailand's three main markets: the United States, Japan and the European Union.[xcvi] In the eight years from 2005-2012 Thailand was the source of a quarter to a third of the shrimp imported into the US, but by 2015 accounted for only 12.6%.[xcvii] In 2011 Thailand accounted for 16% of global exports of all shrimp.[xcviii]

Nature and extent of documented illegality
Illegality in the Thai farmed shrimp industry is found from establishment of ponds and feed production to peeling and processing of the final product. There have been reports of illegal land takeovers for shrimp farming (e.g. mangroves, salt flats, etc.) from those with customary use rights.[xcix] The Thai National Park, Khao Sam Roi Yot, is an example of a protected area invaded by shrimp aquaculture.[c]

Shrimp feed for aquaculture in Thailand includes fish meal that originates from unmarketable marine species caught through indiscriminate trawling. These so-called "trash fish" are small fish and other marine organisms, and they are often caught by fishing boats using slave labor.[ci] Three Thai feed companies became part of the multi-stakeholder Shrimp Sustainable Supply Task Force, an international industry alliance[cii] because at the time of the 2014 expose of the Thai shrimp industry[ciii] they represented 80% of Thai shrimp feed[civ] and their ingredients for the shrimp feed (fishmeal and oil) were produced with fish caught with slave labor. This derivation of illegality – 80% - is like the 75% illegality found for slave and bonded labor violations in shrimp processing.[cv]

Slave labor has also been used throughout shrimp processing sheds in Thailand.[cvi] There are reports of between 400 to 2,000 unregistered peeling sheds which are used to shell and devein shrimp before they are sent to other processors to freeze and package.[cvii] Child labor has been found at significant levels in the production and processing of shrimp.[cviii] There is corruption and complicity amongst government authorities and prosecutions for labor violations are unusual. [cix]

Extrapolation of this documented illegality to global markets
Between 1990 and 2003 Thailand was the world's largest shrimp exporter (21.9%).[cx] Thailand's production has decreased in recent years. In 2011 its share of global exports of all shrimp was 16%. If 80% of this shrimp is produced illegally then at least 12.8% of all shrimp on the global market is produced illegally.

Thailand accounted for 12.6% of shrimp imports into the US in 2015.[cxi] Another study concluded that once it reaches US consumers, all the shrimp from four of the major Thai processors is considered associated with slavery and therefore illegal.[cxii] If 80% of shrimp

imported from Thailand is illegally produced, then one out of every ten (10%) shrimp imported to the US is illegally produced (12.6x80%) - at least one shrimp in a shrimp cocktail made from imported shrimp.

Nature of impact on environmental, social and economic dimensions
There are many concerns with shrimp aquaculture in general including critical habitat conversion, nutrient and waste loading in water; shrimp feed from unsustainable sources; habitat loss; excessive chemical and antibiotic use; water use; disease introduction; poor working conditions; conflicts over shared commons; disease introduction; poor working conditions; conflict over shared commons; wild broodstock and post larvae (PL) seed; loss of ecosystem services.[cxiii]

Steps already taken to address illegality
Several groups have developed voluntary, third-party certification schemes for shrimp including in order of rigor, the Aquaculture Stewardship Council shrimp standards, the GlobalGAP Integrated Farm Assurance Standards, and the Best Aquacultural Practices (BAP) standards[cxiv]. Of these, the ASC standards are the ones that most consistently measure environmental performance (rather than the adoption of better practices) against key performance criteria. And (as of 2016), no shrimp farms in Thailand have been ASC certified due to the traceability requirements of feed and the requirement that the fisheries be healthy. Before the Guardian story on slavery broke, BAP certified numerous farms and feed mills including those of CP and TUF. The BAP standards state that feed must come from environmentally responsible sources.[cxv]

In 2015, Thailand's Government introduced new regulations and controls on the country's fishing fleets.[cxvi] The Thai government has taken steps to control the trafficking.[cxvii] The challenge for Thailand is that the government has been dismissed by the fishing industry for so long that it is difficult for them to manage this situation now. The fishing industry over the last 30 years has decreased catch per unit of fishing effort 12-fold. Thus, it requires 12 times more time to catch the same amount of fish as 30 years ago. This systematic degradation of the wild fish resources fuels the demand for cheaper labor until fish captains cannot afford to pay workers anything (Aaron McNevin, personal communication, 29 August 2016).

Dissatisfaction by many of the shrimp buyers has coordinated into a precompetitive initiative called the Sustainable Shrimp Supply Chain Task Force. The goal of this group is to eliminate slave labor from farmed shrimp supply chains in Thailand, take pressure off capture fisheries so they can recover, and develop full-chain traceability from consumer to marine ingredients in shrimp feed.[cxviii]

<u>Olive oil: Italy</u>

	Resource rights	Labor rights	Other laws	Fraud	Corruption

Olive oil Italy			XXX	XXX	XXX

Nature, extent and size of production
Italy and Spain are responsible for some 70% of global olive oil output. Italy's olive oil production is about 435 mt annually. Italy has 2.5 million acres of olives.[cxix] In the years from 2010/11-2015/16 Italy accounted for some 27.3% of world trade in olive oil.[cxx] In 2015 olive oil production in Italy was down by around one third to the lowest level since 1991. As a result, extra virgin oil has been in more limited supply and prices have risen sharply.[cxxi]

Nature and extent of documented illegality in trade
The Mafia has extended its activities to include many steps in the Italian olive oil market from production and shipping to bottling and sales. One of their illegal activities, practiced by others, is adulteration of the most expensive olive oil, extra virgin. Estimates are that 45% or more of all oil labeled extra virgin in Italy is adulterated.[cxxii] Another estimate is that up to 80% of olive oil sold in the US as extra virgin is not.[cxxiii]

A report from the UC Davis Olive Center showed that 69% of imported olive oil samples tested in 2010 failed to meet standards for extra virgin olive oil.[cxxiv] Other estimates suggest that what consumers are buying is often a blend of less-preferred Spanish, Greek, and Tunisian olive oils, a common practice of Italian bottling companies.[cxxv] In other cases adulterated oil was from North Africa, deodorized with chemicals and rebranded as more expensive Italian extra virgin.[cxxvi]

Extrapolation of this documented illegality
Estimates are that 45% of all oil labeled extra virgin in Italy is not extra virgin.[cxxvii] Perhaps as much as 80% of oil sold in the US as extra virgin is not legal.[cxxviii] Other estimates suggest that 69% of extra virgin olive oil sold in the US failed to meet standards.[cxxix] A Forbes article suggests that 80% of Italian olive oil on the global market is fraudulent.[cxxx] Extending this to global trade, if 27.3% of the world's trade is from Italy and an estimated 45% is illegal then (45% x 27.3%) then an estimated 12.2% of global olive oil is illegally produced.

Nature of impact on environmental, social and economic dimensions
Olives are produced in different ways from more traditional to modern, intensified production. The intensification of production can be associated with soil erosion, use of agro-toxins and associated run-off effects.[cxxxi] There are also impacts of the processing and disposal of waste that can lead to ground water contamination and eutrophication of water bodies.[cxxxii]

Steps already taken to address illegality
The Italian government has taken several steps to fight olive oil fraud including establishing a police unit to 'taste test' and detect fraudulent olive oil.[cxxxiii]

Dairy products: Netherlands

	Resource rights	Labor rights	Other laws	Fraud	Corruption
Dairy Netherlands		XXX	XXX		

Nature, extent and size of production
The Netherlands is the world's second largest exporter of agricultural products, after the US.[cxxxiv] Dairy farming is an important part of Dutch agriculture with 18,000 dairy farms and 1.6 million cows. There are 23 dairy companies, and almost 45,000 full time jobs in the dairy sector. In 2014, Dutch cattle produced more than 12.7 million mt of milk[cxxxv] of which 52.4% of milk was used for cheese,13.5% for milk powder, 8.2% for drinking milk and other fresh products, 6.4% for condensed milk, 1.6% for butter and butteroll, and 17.8% for other uses. Some 65% of Dutch milk production is sold abroad with the EU the most important market. In 2014, the Dutch produced 772 million kilos of cheese.[cxxxvi] Two thirds are exported, which makes Holland the largest cheese exporter in the world.[cxxxvii] In 2015 Netherlands was responsible for 12.4% of total cheese exports in value [cxxxviii]

Dutch dairy cows are raised with soy as part of their animal feed. In 2009 the Netherlands was the second largest importer of soy in the world with an average of 8% of the EU imports of soy going to animal feed.[cxxxix] Forty-six percent of the soy meal processed in the EU in 2007 was from Brazil – all of which was used for animal feed.[cxl]

Nature and extent of documented illegality in Dutch and global market
Dutch dairy farming has two types of illegality that have been recorded, one direct and one indirect, though documentation is not strong for either. First, according to officials in the Netherlands, an estimated 50% of all food exports are illegal due to the illegal status of the workers (Personal communication to Jason Clay from a Netherlands Government Official, January 10, 2013). From further research it appears that periodically illegal labor becomes an issue in the Netherlands (e.g. before the expansion of the EU, then migrants from Eastern Europe and most recently migrants from Syria, the Middle East and North Africa). The issues raised by these waves of immigrants are then addressed until the next wave comes. And, second, as discussed above, a significant part of the soy exported from Brazil was produced illegally. As almost half of the soy meal processed in the EU (2007) was from Brazil, then Dutch dairy products—produced with feed that includes soy from Brazil—could also be considered illegal.

Extrapolation of this documented illegality
If 100% of dairy cattle in the Netherlands have some soy meal in their feed, and 46% of soy comes from Brazil and 65% of Brazilian soy is not produced legally, then 29.9% (46% x 65%) of milk and cheese are produced with illegally produced feed sources. In 2014 the Netherlands exported some 3.1 billion kg. of dairy products, accounting for 4.7% of world trade [cxli] This would mean that with 29.9% illegality in global soy and 4.7% of the global dairy coming from the Netherlands that 1.4% (4.7% x 29.9%) of

global dairy exports are illegal.

Nature of impact on environmental, social and economic dimensions
Environmental and social risks of dairy production include: land conversion, loss of pasture biodiversity through intensification, nutrient loading in runoff, loss of riparian areas, impacts of growing cattle feed, air quality, greenhouse gas emissions, disease, animal health and welfare, water use, food safety, impact on smallholders.[cxlii]

Steps already taken to address illegality
The Dutch dairy industry is transitioning to "responsible soy." It is the first sector in the world to cover its entire soy demand with credits for responsible soy - the first to transition to 100% responsible soy.[cxliii]

Soy: Brazil

	Resource rights	Labor rights	Other laws	Fraud	Corruption
Soy, Brazil		XXX	XXX		

Nature, extent and size of production
In 2015-16 the global soybean production was 312.36 million mt, with the US as the largest producer (106.9 million mt) and Brazil as the second largest producer (96.5 million mt)[cxliv] and the largest exporter. Soy is grown throughout Brazil, but it is most concentrated in the Cerrado ecosystem of the country. The 2014-15 Brazilian soybean harvest was an estimated 97.2 million mt from a harvested area of over 32 million ha.[cxlv]

Nature and extent of documented illegality
Until recently, a significant portion of Brazilian soy was produced in violation of land clearing and labor laws, with illegal deforestation most often occurring in the Amazon and Cerrado regions. In the years following the Soy Moratorium of 2006, however, illegal deforestation for soybean expansion declined in the Amazon biome[cxlvi], though the practice may have continued for wood production and land sales.

By some estimates, for the years leading up to 2012, the percentage of deforestation that occurred for soy production illegally ranged from 49% to 90% with a calculated average of 69.3%, for data across both the Amazon and the Cerrado regions.[cxlvii] This figure is consistent with a 2015 estimate that documented almost 70% of properties surveyed in the state of Mato Grosso were non-compliant with the Forest Code, federal legislation regulating the percentage of native vegetation that must be maintained on private properties, before its 2018 revision.[cxlviii,cxlix] Estimates were even higher for Pará State (96%).[cl]

However, as of 2018, Moratorium survey results indicate that 98.8% of deforestation in the Amazon biome is not associated with soy production.[cli] There is some disparity across data sources on the rates of deforestation, when it can be classified as illegal, and how the causes are attributed; it can be challenging for multiple parties with diverse

interests to agree on a consistent set of numbers, which further illuminates why this challenges inherent in defining the full scope of this issue.

It is worth noting that changing policies and market developments have shifted this landscape in recent years. For example, in 2018 the Brazilian government modified the Forest Code regulations around compliance. The change in law was met with criticism that this could spur additional deforestation; as the government has minimized both the incentives to keep forests in place and restore forests and the consequences for those who might fail to comply.[cliii] In effect, the definition of "legal" practices has shifted.

Illegality was also found in the labor force. with enforcement efforts revealing the use of slave labor by several major sugarcane, soy and cattle producers, resulting in the freeing of hundreds of slaves or people working in slave-like conditions.[cliii] This finding agrees with other studies.[cliv] In 2010 in Brazil, hundreds of agricultural workers were discovered to be working in slave-like conditions. Many were minors.[clv]

Extrapolation of this documented illegality to global markets
If considering data for the years prior to the Soy Moratorium and changes to the Forest Code, an estimated 65% of Brazilian soy producers did not comply with the Code, then 65% of soy produced in Brazil could have been considered illegal. And, one could assert that anything produced from that soy in Brazil was also illegal (e.g. pork, poultry, eggs, milk, fish, shrimp, etc.). However, Brazil also exports roughly 43% of global soy.[clvi] If an estimated 65% of Brazilian soy producers did not comply with the Forest Code, then 27.9% of global soy trade was produced illegally in the country of origin. It is too early to tell how the new revisions to the Forest Code will impact these numbers.

Nature of impact on environmental, social and economic dimensions
The global environmental and social risks of soy production include: land conversion, agrochemical use, soil erosion and health, food displacement, water take and effluent, greenhouse gas emissions, genetic modification, weed resistance, poor working conditions and community displacement.[clvii] There is evidence of displacement from soy production in the Amazon areas, where the federal legislation limiting conversion of natural habitat is more strict, to the Cerrado, where the laws are more lax.[clviii] However, it has also been noted that almost all areas of the Cerrado that are appropriate for agriculture have already been developed and what is left in that biome may no longer be viable for production.[clix]

The impact of the ongoing shift in global trade due to US and China tariffs on illegality in soy production is unclear at the time of writing. But, it could increase pressure on the Cerrado.[clx] Because there are no tariffs on imported soy, it is possible that soy imported to Brazil could be mixed with local production to avoid trade barriers (e.g. US soy exports directly to China).

Steps already taken to address illegality

In 2006 the Round Table on Responsible Soy was established as a multi-stakeholder initiative involving the mainstream soy industry, to move soy producers and traders toward environmentally and socially responsible production.[clxi] In Brazil the "Soy Moratorium" was established to curtail deforestation on soy-producing properties.[clxii] The Moratorium, combined with the declining amount of forest land suitable for production, has led to a decline in soy-driven deforestation in the Amazon.[clxiii] However, as mentioned, we will need to wait and see how the Forest Code revisions and changing political landscape may alter this over time.

The implications of illegality in food

Who is responsible?
Illegality is defined in this paper as producing raw or processed material in a way that violates laws, policies and regulations of the country of origin. It includes resource rights and access, labor rights, other laws, fraud and corruption. As such it is national governments that are responsible both for defining and controlling illegality.

With the increasing globalization of trade, importing country governments rely on exporting governments to ensure that all legal issues have been addressed before products are exported. While many governments have strong laws and the regulations to back them up, in many cases the laws and regulations are not enforced or are deliberately circumvented. Given the difficulty of determining illegality in many supply chains, limits on national government inspection and testing, and the presence of corruption and obfuscation in product production, this paper suggests that it may often be the case that a product exported legally was produced illegally in the country of origin.

Companies almost always want to avoid buying or selling illegally produced products due to legal and reputational risks. They often rely on governments to guarantee legality at all stages of the product chain. The companies' need for legality is further complicated by the fact that, depending on the raw material, most retailers or brands do not buy products directly from producers but through intermediaries. However, given the publicity that has arisen about this issue, many are beginning to consider the need to determine legality in their entire supply chain.

Responsibility to eliminate illegality is held not just by governments and companies but also transnational entities like INTERPOL, treaty bodies like CITES, certification organizations like Forest Stewardship Council, private legality verification schemes[clxiv], global trade associations like the International Labor Organization and even the International Chamber of Commerce. But perhaps the institution that is most responsible, aside from governments themselves, is the World Trade Organization that does not allow governments to discriminate against products based on how they are produced (i.e. PPM—production, processing and manufacturing)

What are the legal implications?
Illegality has implications for many groups: for governments it can undermine the rule of law and perpetuate corruption; for companies, it constitutes a significant reputational,

legal, and business risk; for consumers, it can pose health risks and ethical challenges; and for laborers it can mean a violent coercive workplace.

At a global scale, trafficking of counterfeit goods is among the world largest international criminal enterprises, increasing rapidly and favored by organized crime.[clxv] Illegality in food and soft commodities is often part of a broader pattern of illegality perpetuated by the same actors as in organized crime and the example of the Mafia's influence on olive oil adulteration and fraud.[clxvi]

At a national scale it can mean illegal use of resources with knock-on effects on biodiversity. This can be through deforesting national parks and protected areas for cocoa and palm oil, destroying critical corridors with beef and soy production, destroying mangroves for shrimp farms, or further threats to endangered species through pulp and paper production.

Even though in general it is the national government that is legally responsible for determining legality, both the US (for forest products) and the EU (for forest and fisheries products) have passed regulations that suggest that ignorance on the part of companies is no defense. In both cases, senior management of retailers and brands are legally responsible, and can be held liable, for any purchase and resale of illegally produced and sourced commodities or products made from them. Even investigations of suspected wrongdoing can have significant ramifications for a company.[clxvii] This is made even more complicated by the issue of mixed-legality products where a legal product has been produced or co-mingled with an illegal product during processing (e.g. shrimp or beef) or used as a feed or ingredient in subsequent food production.

Complicating the issue of legal responsibility is the fact that some products produced legally may include other products that were not produced legally. For example, if illegally produced feed ingredients are used to produce beef, dairy, eggs, pork, poultry or farmed fish or shrimp can those end products be considered legal? And, legality aside, is the risk associated with such production acceptable to the retailers or brands? When should it or should it not be considered legal, e.g. when is biodiversity loss, habitat conversion, deforestation, slave/bonded labor, child labor, illegal immigrants significant? Is the issue enough to be serious, or only when it affects a family, a company, or a country? And when does this stop?

<u>What are the financial implications?</u>
The financial costs of illegality are huge and largely undocumented with figures ranging from $40 billion to $600 billion per year. As discussed above financial costs can be borne by many along a commodity chain from the farm worker to the company to the national government to the customer. They can include lost tax revenue, the cost of refunding or impounding an illegal or adulterated product or lost wages.

One estimate places a value of $61 billion per year on agricultural commodities alone that are produced on land illegally converted from tropical rainforests.[clxviii]

The economic value of global illegal logging (including processing) is estimated from US $30-100 billion, or 10-30% of global wood trade.[clxix] An area of forest equivalent in size to the territory of Austria disappears worldwide every year as the result of illegal logging INTERPOL and The World Bank, "Chainsaw Project: An INTERPOL Perspective on Law Enforcement in Illegal Logging" (The World Bank, 2008)..[clxx] In addition to the losses in direct revenue there are losses to people who used to rely on the forests for livelihoods and the ecosystem services that those forests would have provided to people living in them and at a distance.

Difficulties in defining and determining illegality

Determining illegal behavior is easy in some circumstances but more complicated in others. This difficulty is of two types: difficulty in detection and difficulty in determination. Difficulties in determination of illegality would include cases where illegally obtained but otherwise legal export permits are being used or when adulteration of a legal product is done with a nearly identical product such as with palm oil from an illegal plantation.

Difficulty in determination can be due to several factors[clxxi] that include a long commodity chain, a commodity chain that crosses several national boundaries, or determination of illegality for a product that, while is legal itself, is made from illegal products. A question that remains to be addressed is whether an ingredient that is produced illegally can ever be used as an ingredient or a feed to produce a "legal" product. If palm oil is produced illegally, then can margarine, peanut butter, shampoo or conditioner, ice cream or hundreds of other products made from it ever be considered legal?

A final factor in contributing to difficulty in defining illegality is the fact that different countries may have different definitions of legality and can all be supplying products that are blended by the vendor.

Illegality may also not be viewed as having the same definition by all actors in a commodity chain with formal illegality diverging from social illegality.[clxxii] This can be seen in firmly entrenched labor markets such as the use of children in the cocoa industry[clxxiii] that follows a long tradition and the legal and illegal acts are not separated by clear social boundaries. Such a situation can also be found where organized crime operates across many stages in the commodity chain such as the case with southern Italian olive oil.

What are the trends in illegality?

Illegality is growing, and it is becoming more sophisticated due to the generally higher prices for commodities as well as through learning from and by criminals, the rise in global trade, the ability to hack into government documents, and the involvement of organized crime. The increasing number of roads and ports also make it easier to move commodities illegally to and through less rigorous facilities. Finally, developed countries have curbed their budgets for inspection, passing them back to the country of origin and

this means that far less product is being inspected, much less inspected rigorously, than before.

There is an increase in attempts to curtail this illegality through coordinated law enforcement, customer education, commodity-specific sustainability roundtables and industry self-policing. However, these efforts are working against a stronger set of trends including rising incomes in developing nations with a concomitant surge in animal protein and meat consumption that in turn drives land conversion and fraud. Labor shortages in agriculture in turn drive increases in the use of illegal labor. Finally demand for some products is increasing faster than they can be sustainably produced or harvested so they are produced illegally.

What are the strategic implications of illegality for conservation?

The links between illegality, environmental impacts, and human rights violations are rarely made. Yet illegality clearly increases a range of negative environmental impacts including soil erosion and eutrophication, greenhouse gas emissions, water take, land-use change, and the loss of biodiversity and ecosystem services.[clxxiv] In exporting countries illegality is a major driver of environmental degradation and social instability from deforestation, water pollution, and resource depletion to armed conflicts, human trafficking, violence against women and children and illegal detention. Illegality has negative impacts on all components of biodiversity, genes, species, and ecosystems. It also can dramatically accelerate habitat destruction affecting both biodiversity and local human communities. Drivers linked to agriculture are responsible for 70% of biodiversity loss globally.[clxxv] A similar percentage (80%) of deforestation globally has resulted from food production as well.[clxxvi]

Despite this, illegality is not acknowledged as an important factor to be addressed by conservation organizations, despite being a target of work by human rights and social justice organizations. Eliminating illegality would reduce deforestation significantly as well as increase marine life and build support for conservation objectives at multiple levels.

Conclusion

Globalization and the need to feed more people with more nutritious food means that food and soft commodity production has expanded into areas that were not previously connected to markets. Today we have the technology to extract resources from the most remote places on the planet, but we don't have the will or capacity to simultaneously extend the rule of law to the same places. An "arc of illegality" is being formed where resources are extracted decades before the rule of law is established in the same places. And by then many of the resources have been exhausted and the systems of production "legalized."

Despite the many stakeholders affected by illegality there is no one clearly responsible for its awareness much less its elimination. Because illegality is a collective risk experienced by numerous actors, diverse and even competitive actors including

companies will have to work together to find solutions. This is a precompetitive issue. No one can address the issue alone.

Illegality is likely to get worse before it gets better. Global trade is increasing and supply chains are getting longer and more complicated. This is being driven by a more affluent global population and increasing uniformity in the nature of global demand. The first step in addressing the scourge of illegality in production is to create awareness. From this awareness we can build consensus on the extent of the problem as well as the key issues and priorities for action while simultaneously empowering key partners.

Appendix 1: Examples of illegality in soft commodities

- 20%+ of world catch is Illegal, Unregulated or Unreported (2008).[clxxvii]
- Land grabs in shrimp production: Vietnam, Indonesia, Ecuador, Honduras
- Murders have been linked to shrimp production in Mexico, Guatemala, Honduras, Ecuador, Brazil, India, Bangladesh, Thailand, Vietnam, Indonesia, and the Philippines.[clxxviii]
- Illegal logging accounts for 50-90% of the volume of all forestry in key producer tropical countries and 15-30% globally.[clxxix]
- The economic value of illegal logging globally (including processing) is estimated from US $30-100 billion, or 10-30% of global wood trade.[clxxx]
- The World Bank estimates the economic loss from illegal timber trade to be approximately US $10 billion annually, and the losses due to tax evasion and royalties on legally sanctioned logging to be approximately US $5 billion annually.[clxxxi]
- Of total illegal timber, US $5 billion enters world trade, 10% of value of global trade of primary wood products.[clxxxii]
- Forest Trends has estimated that agro commodities produced on land illegally converted from tropical rainforests are valued at up to $61 billion per year.[clxxxiii]
- According to a 2014 report on the illegal wildlife trade, endangered species are being poached at an alarming rate to feed unlawful global trade in wildlife – estimates range from values of $8 to $10 billlion a year excluding fisheries and timber. The street value of ivory can reach $2,205 per kilogram in Beijing, and since 2007 illegal ivory trade has more than doubled, and is three times greater than it was in 1998. On the Chinese black market, Rhino horn can sell for $66,139 per kilo – more than the price of gold or platinum.[clxxxiv]
- Estimates are that illegal and unreported catches accounted for 20-32% by weight of wild-caught seafood imported to the US in 2011. These imports accounted for $1.3 to $2.1 billion of the total of $16.5 billion value for the 2.3 million tons of edible seafood imported.[clxxxv]
- 85% of global fish stocks can be considered at significant risk of Illegal, Unreported, and Unregulated (IUU) fishing.[clxxxvi]

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