TRANSNATIONAL ALLIANCE
TO COMBAT ILLICIT TRADE
TRACIT.ORG

SUSTAINABLE DEVELOPMENT GOALS

8 DECENT WORK AND ECONOMIC GROWTH

MAPPING THE IMPACT OF ILLICIT TRADE ON THE SUSTAINABLE DEVELOPMENT GOALS

TRACIT.ORG

ABOUT TRACIT

The Transnational Alliance to Combat Illicit Trade (TRACIT) is an independent, private sector initiative to drive change to mitigate the economic and social damages of illicit trade by strengthening government enforcement mechanisms and mobilizing businesses across industry sectors most impacted by illicit trade.

FOR MORE INFORMATION

Visit www.tracit.org/featured-report-illicit-trade-and-the-unsdgs.html

MEDIA

All media enquires should be directed to
Cindy Braddon, Head of Communications and Public Policy, cindy.braddon@TRACIT.org

SOCIAL MEDIA

Twitter: @TRACIT_org
LinkedIn: www.linkedin.com/company/tracitorg

TABLE OF CONTENTS

EXECUTIVE SUMMARY

In October 2021, Ministers participating in the fifteenth session of the United Nations Conference on Trade and Development (UNCTAD 15) added the challenge of mitigating illicit trade as the only new priority in their 4-year work program. Notably, this was the first time that illicit trade had been addressed by UNCTAD at the highest institutional level.

In defining the vision for UNCTAD's role in combatting illicit trade, the adopted Bridgetown Covenant called for:[*]

> *"[…]addressing the challenge faced by many developing countries in the estimation of illicit trade, including the assessment of their impact on resource mobilization for development, specifically, and on national development strategies. Illicit trade creates a triple threat to the financing of development: crowding out legitimate economic activity, depriving Governments of revenues for investment in vital public services and increasing the costs of achieving the Sustainable Development Goals (SDGs)."*

Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.

Clearly, UNCTAD Ministers understood that illicit trade has severe negative impacts on the economy and, more widely, on the achievement of the UN Sustainable Development Goals (SDGs). For the same concern, TRACIT published in July 2019, a report that mapped the impacts of illicit trade against all the SDGs. One of the most significant findings was that SDG 8 (Decent work and economic growth) is the development goal most at risk from illicit trade because all forms of illicit trade drain revenue, jobs and tax incomes from the legitimate economy.

This is especially troubling because the sustained, inclusive economic growth envisaged in SDG 8 underpins the achievement of the other goals and is fundamental to driving progress, creating decent jobs and improving living standards that support development and human well-being, while minimizing impacts on the Earth's natural capital and associated ecosystems.

[*] UNCTAD. (2021). The Bridgetown Convenant, https://unctad.org/system/files/official-document/td-l-435_en.pdf

Consequently, mitigating illicit trade is imperative for the achievement of SDG 8 and, arguably, the overall success of the 2030 agenda.

- Illicit trade erodes the productivity and profitability of multiple commercial sectors, draining hundreds of billions from the legitimate economy each year and undermining economic development and growth. This illegal and essentially unfair competition from illicit trade diverts income from the balance sheets of legitimate businesses and undermines their ability to create jobs and pay taxes. Lost excise duties along with unexercised corporate and personal income taxes, strip governments of funds intended for public investment, with relatively more severe impacts on developing countries.
- Additionally, there are indirect impacts on the economy. For example, by depleting fish stocks, IUU fishing threatens economic and employment opportunities for communities that depend on fishing for their livelihoods. Similarly, illegal logging and illicit timber trade have indirect impacts, threatening jobs in the tourism industry when protected forests and animal habitats are damaged. For farmers, the use of counterfeit pesticides creates cascading economic losses: money is wasted on fake pesticides that have little or no effectiveness in protecting crops, crop yields are reduced, and long-run environmental degradation is accelerated.

This report's focus on the negative impacts of illicit trade on the economy and employment is especially relevant to decision-makers participating in the UNCTAD 2nd Illicit Trade Forum scheduled to take palce in Geneva from 6 to 7 September 2022. The Forum will be the first official UNCTAD event on illicit trade following the Bridgetown Summit and comes in the wake of the COVID-19 pandemic. For this reason, the report also includes observations on how the pandemic has changed or exacerbated those impacts.

Collectively across illicit trade sectors, the report provides a useful starting point—for UNCTAD or others—to more fully understand, estimate and assess how illicit trade negatively impacts sustainable economic development and employment. Augmented with further research, data and analysis, it could also shed light on the parameters needed to achieve UNCTAD's mandate to develop a methodology to produce estimates of the total value of inward and outward illicit trade as well as to assess the impact of illicit trade on the UN SDGs.[1]

I. Introduction

Measurements on illicit trade

Measuring illicit markets involves developing statistics on activities that, by their nature, are intentionally difficult to observe as criminals do not report on their activities. The challenge is compounded by conflicting or a lack of internationally agreed upon definitions on what constitutes an illegal activity; a trade that is legal in one jurisdiction may be strictly illegal in another. Moreover, national statistics, if they exist, are often of poor quality or based largely on custom seizures which are hard to relate to actual illicit market figures. Nonetheless, estimates on the value of illicit trade are a helpful starting point for policy discussions on corrosive impacts on society.

Table 1 provides a summary of the overall size of criminal markets in the 12 sectors examined in this report. The information is derived from an array of sources, including published reports, UN and governmental statistics and various estimates from academic and research studies (a more detailed examination of the costs and values can be found in the corresponding sector chapter).

The methodologies, assumptions and data fed into the models vary widely across the sectors or in some cases yield a wide range of values within sectors. For these reasons, the values are unique to their source and are not commutable in their current state, without further standardization. For example, some of the assessments account for direct losses based on the immediate value of the commodity (e.g., stolen oil, counterfeits), while others consider the amount of lost government revenue (e.g., tobacco). In the case of human trafficking, the values reflect the estimated income this illicit activity generates for traffickers.

Table 1

	LOW RANGE ($US BILLION)	HIGH RANGE ($US BILLION)
AGRI-FOOD	30	50
AGROCHEMICALS AND PESTICIDES	8	20
ALCOHOL	243	566
COUNTERFEIT AND PIRATED GOODS	509	1900
FORESTRY PRODUCTS	51	152
ILLEGAL, UNDERREPORTED AND UNREGULATED FISHING	26	50
PETROLEUM PRODUCTS	133	133
PHARMACEUTICALS	4	432
PRECIOUS METALS AND GEMSTONES	48	48
TOBACCO PRODUCTS	41	50
TRAFFICKING IN PERSONS	150	150
WILDLIFE	7	23
TOTAL	USD 1.250 Trillion	USD 3.574 Trillion

Even when correctly estimated, these values do not account for other significant drains on the economy or afflictions on society. Additional economic losses, for example, include lost tax revenues to governments and the preclusion of jobs due to employment opportunities that would otherwise have been created. Losses to society include health and safety risks to consumers and public expenses associated with increased criminal activity. The findings in this report do not also account for intangible costs, such as a general loss of trust in institutions, environmental degradation, or the erosion of social fabric and rule of law—all of which put downward pressures on economic growth, employment and generally the ability to achieve SDG 8. Hence, the numbers should only be taken as suggestive of what might, unfortunately, be a much greater order of magnitude of the illicit markets.

Illicit trade and the UN SDGs

The UN Sustainable Development Goals (SDGs) lay out an ambitious set of 17 goals to address the world's most acute economic, social and environmental challenges.

Among the portfolio of tools available to achieve the SDGs is the expansion of international trade.[2] This is because trade has historically proven to be an engine for development, boosting income generating capacity and contributing to unprecedented reductions in poverty levels.[3] Over the last few decades cross-border trade has expanded significantly, supported rising living standards across the globe.

Concurrent with the expansion in legal trade has been the alarming emergence of illegal (or illicit) trade, with estimates quantifying it and associated transnational criminal activities at between 8 and 15 percent of global GDP.[4]

In order to help governments and business better understand how their efforts to achieve sustainable development must account for the negative forces of illicit trade, the Transnational Alliance to Combat Illicit Trade (TRACIT) published the 2019 report, *Mapping the Impact of Illicit Trade on The Sustainable Development Goals*.

From smuggling, counterfeiting and tax evasion, to the illegal sale or possession of goods, services, humans and wildlife, the TRACIT report found that illicit trade[5] is compromising the attainment of the SDGs in significant ways, crowding out legitimate economic activity, depriving governments of revenues for investment in vital public services, dislocating millions of legitimate jobs and causing irreversible damage to ecosystems and human lives.

Illicit trade and SDG 8 ambitions for decent work and economic growth

All types of illicit trade hinder achievement of SDG 8 by significantly threatening decent work and inclusive economic growth. Lost taxes rob governments of revenues intended for schools, infrastructure and other public services. Illegal and unfair competition reduces sales and dampens the ability of companies to create lasting and dignified job opportunities. Taken together, economic leakages across the sectors susceptible to illicit trade create an annual drain on the economy of USD 2.2 trillion and present a triple threat to financing the necessary "billions to trillions" dollar gap needed to reach the SDGs.

In many ways, achieving SDG 8 is prerequisite for achieving all the other development goals, as sustained and inclusive economic growth is fundamental to driving progress, creating decent jobs and improving living standards that support development and human well-being, while minimizing impacts on the Earth's natural capital and associated ecosystem services. Illicit trade–in all its forms–stands in direct juxtaposition to SDG 8 and threatens achievement of its objective.

Accounting for the impacts of COVID-19

The toll the COVID-19 pandemic has exacted on the global economy has been significant, with the International Monetary Fund (IMF) estimating that median global GDP dropped by 3.9 percent from 2019 to 2020, making it the worst economic downturn since the Great Depression.

Following a strong rebound in 2021, the global economy is entering a pronounced slowdown amid fresh threats from COVID-19 variants and a rise in inflation, debt, and income inequality that could endanger the recovery in emerging and developing economies.[6] Global growth is expected to decelerate markedly from 5.5 percent in 2021 to 4.1 percent in 2022 and 3.2 percent in 2023 as pent-up demand dissipates and as fiscal and monetary support is unwound across the world.[7]

This study recognizes that the COVID-19 pandemic has also fundamentally changed the global illicit trade economy. While the pandemic's immediate effect was predictably to slow down all forms of economic activity, including the illicit, findings suggest that criminal groups have swiftly adapted to the new normal, exploited the situation and entrenched their positions in illicit markets.

The choices policymakers make in the next few years to move from crisis management into recovery mode will decide the course of the next decade. For governments looking at ways to restart and grow their economies, it will be important to formulate policies and implement programs that deter and preclude illicit trade actors from consolidating roots in the post-pandemic economy.

Addressing the threat of illicit trade on the SDGs will also require renewed political will of government officials at all levels to prioritize the problem. This includes ramping up implementation of enforcement measures to ensure that illicit trade activities caused or incentivized by the pandemic do not become permanent features of the post-pandemic economy.

II. Sector review of illicit trade and SDG 8

Impact of illicit trade on SDG 8

One of the most significant findings from TRACIT's 2019 report was that SDG 8 (Decent work and economic growth) is the development goal most at risk from illicit trade because all forms of illicit trade drain revenue, jobs and tax incomes from the legitimate economy.

- **Costs legitimate businesses billions in revenue losses each year.** Illicit trade erodes the productivity and profitability of multiple commercial sectors, draining hundreds of billions from the legitimate economy each year and undermining economic development and growth. This illegal and essentially unfair competition from illicit trade diverts income from the balance sheets of legitimate businesses. In the US, for example, the Grocery Manufacturers of America estimated that the annual cost of food fraud was between USD 10-15 billion.[8] Globally, estimated losses are USD 30-50 billion each year, undermining economic growth, costing jobs and hurting entire sectors of the economy.[9] [10]
- **Impacts government revenues from uncollected taxes.** For example, illegal agrochemicals represent as much as 15-20 percent of the market in Kenya,[11] and the government reported losing at least Sh120 billion (USD 1.19 billion) in revenue from unregistered agrochemical dealers and counterfeit pesticides. This exacerbates budget deficits and precludes government spending on health care and social infrastructure. Lost excise duties along with unexercised corporate and personal income taxes, strip governments of funds intended for public investment, with relatively more severe impacts on developing countries.
- **Hurts job creation.** Illegal and essentially unfair competition from illicit trade undermines the ability of legitimate businesses to create jobs. For example, sugar smuggling by illegal cartels in Kenya has drained tens of thousands of jobs.[12] Fake medicines cost the EU pharmaceutical sector EUR 10.2 billion each year, resulting in 90,000 jobs lost as well as EUR 1.7 billion in lost government revenues (taxes and social contributions).[13] A 2020 study by Pacific Research Institute found that US state and federal governments could be losing between USD 4.5-19 billion in potential tax revenues due to counterfeit medicines, as well as a reduction in the total number of jobs in the US by between 57,500-247,800.[14]
- **Supports forced labor and human rights abuses.** Women, children and men of all ages are forced to labor in illicit sectors, where they are abused by organized criminals in their pursuit of profits. For example, those employed by illicit fishing vessels are often forced to work in conditions that are unsafe, and which put their lives at risk. This precludes decent work opportunities and makes the hiring of qualified crew more difficult and expensive, leading unscrupulous operators to use forced labor and practice other human rights violations.

The sustained, inclusive economic growth envisaged in SDG 8 underpins the achievement of the other goals and is fundamental to driving progress, creating decent jobs and improving living standards that support development and human well-being, while minimizing impacts on the Earth's natural capital and associated ecosystems.

The following sections review and update key findings from TRACIT's 2019 report to focus on the negative economic and employment impacts associated with illicit trade and their relationship to SDG 8. Additionally, each section incorporates observations from the COVID-19 pandemic, which have had fundamental impacts on illicit trade.

Each section references a sector that participates significantly in international trade and that is particularly vulnerable to illicit trade:

- Agri-food industry
- Agrochemicals and pesticides
- Alcohol
- Counterfeit and pirated goods
- Illegal, underreported and unregulated fishing
- Petroleum products
- Pharmaceuticals
- Precious metals and gemstones
- Tobacco products
- Trafficking in persons
- Wildlife

CHAPTER 1: SDG 8 AND ILLICIT TRADE IN THE AGRI-FOOD INDUSTRY

Illicit trade in the agri-food sector comes in many forms, ranging from economically-motivated adulteration (EMA), commonly referred to as food fraud, to large scale smuggling of agriculture products. Food fraud encompasses deliberate and intentional substitution, addition, tampering, or misrepresentation of food, food ingredients, or food packaging; or false or misleading statements made about a product for economic gain. The types of fraud include adulteration, tampering, product overrun, theft, diversion, simulation, and counterfeiting.

Agriculture constitutes a large portion of most economies' GDP, and a healthy agricultural sector is vital to eradicating hunger and poverty. Growth in the agriculture sector is two to four times more effective in raising incomes among the poorest compared to other sectors. Agriculture is also crucial to economic growth: in 2018, it accounted for 4% of global gross domestic product (GDP) and in some least developing countries, it can account for more than 25 percent of GDP.[15] Consequently, strong, legal agricultural trade is crucial to achieving several SDGs, especially in developing and emerging economies.

In contrast, fake, substandard, smuggled and illegal agri-foods distort and destabilize food markets and cost the global food industry billions in losses each year. In the US, for example, the Grocery Manufacturers of America estimated that the annual cost of food fraud was between USD 10-15 billion.[16] Globally, estimated losses are USD 30-50 billion each year, undermining economic growth, costing jobs and hurting entire sectors of the economy.[17] [18]

Well known examples of food fraud include the fipronil in eggs scandal in 2017 in Asia and the EU, the horsemeat-as-beef incident in the EU in 2013, and the melamine-tainted milk in China in 2008. Researchers recognize that these exposed cases may only represent the "tip of the iceberg" of global food fraud.[19]

Indirect economic impacts include downward pressure on employment, lost tax revenue or lost market share. For example, sugar smuggling by illegal cartels in Kenya has drained tens of thousands of jobs[20] and strips the government of tax revenues.[21]

In Asia, Cambodia's rice industry is on the "brink of collapse" due to unfair competition from cheaper illegal rice imports.[22] Elsewhere in the region, China and the Philippines also report economic damage from illegal rice trade.[23] In cases where illegal food trade results in consumer injury or harm, a corporation's economic sustainability can be severely damaged. A study commissioned by the Grocery Manufacturers Association estimates that one adulteration incident can cost a company between 2-15 percent of annual revenues.[24]

Incidents of food fraud in a market also may have long-term effects on consumer trust. Once confidence in the food system is lost, even the rumor of food fraud may have far reaching damages. For example, unsubstantiated rumors circulating on social media about plastic rice in markets in Africa[25] and plastic seaweed in China[26] stoked consumer fear, with subsequent damage on the brands, imports and profits of legitimate producers.

The multifaceted complexities of food fraud make it difficult for governments to eradicate the problem. Some of the key challenges include: (i) a lack of organized information about the types and scope of food fraud; (ii) the tenuous nature of harm caused by food fraud; (iii) complicated and opaque global food supply chains; (iv) lack of internationally recognized legal definition of food fraud; and (v) rapid advances in online marketing and e-commerce that multiply the opportunities for food fraud.[27] [28]

COVID-19 pandemic impact on the illicit agri-food industry

In May 2020, the Food Authenticity Network Advisory Board, which includes more than 1,500 food science experts from around the world, cautioned that the disruption to global supply chains caused by the COVID-19 pandemic and the diminished level of surveillance would likely lead to a rise in food fraud. Europol and INTERPOL have been especially vigilant of food fraud in efforts to protect consumers from supply shortages of some products during the COVID-19 pandemic. More than USD 40 million worth of potentially dangerous fake food and drink were seized in an operation coordinated by the two organizations between December 2019 to June 2020. Known as Operation Opson IX, it targeted and seized fake and substandard food and beverages, disrupted 19 organized crime groups and arrested 407 individuals worldwide. About 12,000 tons of illegal and harmful products were confiscated, including dairy products, meat from illegally slaughtered animals and food products falsely labelled as medicinal cures.

Experts cautioned that the disruption to global supply chains caused by the COVID-19 pandemic and the diminished level of surveillance would likely lead to a rise in food fraud.

Notably, seizures of expired food items (or where the expiry dates had been altered) were significantly higher during the pandemic than during previous Opson operations, suggesting that criminals were capitalizing on the disruption of food supply chains caused by national lockdowns. Other evidence includes a discovery of seafood seized in South Africa originating from Asia, which was falsely declared as personal protective equipment.[29]

CHAPTER 2: SDG 8 AND ILLICIT TRADE IN AGROCHEMICALS AND PESTICIDES

Illicit trade in agrochemicals and pesticides includes obsolete or banned unauthorized pesticides; untested, unregulated, or unlicensed pesticides; unauthorized imports; counterfeit and fake pesticides; relabeled or mislabeled pesticides; and refilled pesticides containers.

Agriculture drives economic development and provides a livelihood for many of the poorest and most vulnerable people. According to the World Bank, growth in agriculture sectors is at least twice as effective in reducing poverty as growth in any other sector.[30] Pesticides play an important role in stimulating agricultural productivity and crop yields, thus generating a positive impact on global food supply, poverty eradication, economic growth, development and job creation.

However, counterfeit and illegally traded pesticides are finding their way into markets worldwide.[31] In its 2020 study on counterfeit pesticides, the OECD found that global trade in illegal pesticides has been steadily growing in recent years, posing threats to agriculture, food supply, the environment, farmer health, and national economies.[32] According to various estimates, the share of illegal pesticides on the global pesticides market ranges from 10 percent to as high as 25 percent.[33] With the global pesticide market valued at over USD 80 billion in 2021,[34] global revenues associated with the trade of illegal pesticides are estimated at more than USD 8 to 20 billion per annum.

Unfortunately, there are additional economic impacts associated with the growth in illicit pesticides, starting with lost government revenues from uncollected taxes. For example, illegal agrochemicals represent as much as 15-20 percent of the market in Kenya,[35] and the government reported losing at least Sh120 billion (USD 1.19 billion) in revenue from unregistered agrochemical dealers and counterfeit pesticides. This exacerbates budget deficits and precludes government spending on health care, infrastructure and job creation. Governments also end up spending more on enforcement-related activities to clear markets of illicit products, further burdening limited resources that could be used for raising awareness and preventing farmers from becoming victims of criminal trade.[36]

Legitimate producers and distributors are faced with unfair competition from counterfeit, "look alike" and low-cost, substandard product, which tarnishes their brand reputation and damages customer trust. For individual farmers, the use of counterfeit pesticides creates a triple loss: money is wasted on pesticides that have little or no effectiveness in protecting crops, crop yields are reduced or even lost, and long-run environmental degradation is an ever-present risk.[37]

To illustrate the socio-economic losses to Europe, the EUIPO estimated that the knock-on effects associated with illegal pesticides in the EU marketplace account for 11,700 lost jobs, EUR 238 million (USD 244 billion) lost tax revenues and a staggering EUR 1.3 billion (USD 1.33 billion) annual burden on EU business.[38]

On a macro level, illicit pesticides can devastate markets for particular products by eroding public confidence in established producers, agricultural producing countries, and perceptions of food safety. They also cause reputational damage to established food producers, products, and brands and exporters.[39] One of the more well-known examples involved detection of isofenphos-methyl in pepper samples exported from Spain to Germany, Finland, Netherlands, UK and Russia. In the wake of the revelation, Spanish pepper exports dropped almost 20 percent and prices decreased by 60 percent. An investigation linked the banned chemical to illicit pesticides used in the pepper fields, which led to production stoppages and the seizure of 2,200 liters of mixed illicit pesticides, with criminal charges and fines for the implicated farmers.[40]

In India, a 2015 study by the Federation of Indian Chambers of Commerce and Industry (FICCI) found that India's position as one of the leading food exporters in the world, a market worth INR 1,578 billion (USD 21 billion), could be at stake if importing countries reduce or ban imports of crops due to the presence of illegal pesticides.[41]

COVID-19 pandemic impact on illegal pesticides

The COVID-19 pandemic did little to dampen the sale of illegal pesticides. For example, Europol's Operation Silver Axe, which targets the illicit trade of pesticides, seized twice the amount of illegal product during the 2020 pandemic than it did in the previous period. This was followed by an increase in seizures of raw materials and production equipment entering Europe, suggesting a rise in counterfeiting activities inside the EU.[42]

The downward economic pressures associated with the pandemic also makes farmers more vulnerable and susceptible to purchasing cheaper, illicit pesticides. Meanwhile, the global shortage of N95 masks and other personal protective equipment – vital for farmers and farm workers who work with pesticides – leaves workers extra exposed to potentially harmful and dangerous illegal pesticides.

Criminal groups have also taken advantage of the worldwide crisis to sell illegal disinfectants and sanitizers with false and fraudulent claims that they could protect against COVID-19 (Note: surface disinfectants are categorized as pesticides in the US. Similarly, hand disinfectants are considered biocides in Europe and must be authorized prior to being placed on the EU market). In February 2021, the U.S. Environmental Protection Agency (EPA) issued a "stop sale" order to Amazon.com to prevent sales of potentially dangerous or ineffective unregistered pesticides, including multiple products that claimed to protect against COVID-19. The order follows the discovery of several COVID-19-related fraud schemes where individuals were caught importing and selling illegal and unregistered pesticides with false claims that they protected against the virus.[43] As late as in June 2022 a New Jersey man pled guilty to selling nearly USD 3 million worth of unregistered pesticides he falsely claimed were approved by the U.S. Environmental Protection Agency (EPA) to combat the coronavirus.[44]

CHAPTER 3: SDG 8 AND ILLICIT TRADE IN ALCOHOL

Illicit trade in alcohol encompasses a wide variety of illegal activity that is typically characterized as:

- Contraband/Smuggled Alcohol – is original branded alcohol that has been illegally imported/smuggled into a jurisdiction and sold, evading tariffs/customs.
- Counterfeit Alcohol – is fraudulent imitations of legitimate branded products, including refilling, falsification and tampering.
- Illicit Artisanal – is produced following artisanal practices, including home production, but is considered illicit if produced for commercial purposes or if their production and/or sale violate local law.
- Tax Leakage – is legally produced alcoholic beverages on which the required excise tax is not paid in the jurisdiction of production.
- Non-conforming Alcohol – is produced with industrial alcohol and products not meant for human consumption but diverted to the market for alcoholic beverages (i.e., pharmaceutical alcohol, mouthwash, perfume.)

The alcoholic beverages sector is an important contributor to economic growth and jobs, along with bringing in foreign currency for exported beverages and generating significant tax revenues for governments. The OECD estimates the legitimate alcohol sector to be worth around USD 1.7 trillion.

- In France, wines and spirits account for some 721,000 jobs with export sales of EUR 12.9 billion in 2017.[45]
- In the US, the alcohol beverage industry is responsible for sustaining more than 4 million jobs and generating almost USD 70 billion in annual tax revenue.[46]
- In the UK, the alcohol industry contributes around of total GDP.[47]
- The South African wine industry supports 269,000 jobs throughout the wine value chain and contributes approximately 1.1 percent of GDP.[48]

A recent study by Oxford Economics assessed the beer industry's global economic impact and found that 1 in every 110 jobs in the world is linked - through direct, indirect, or induced impact channels - to the beer sector, and that the sector supported USD 555 billion of gross value added (GVA) to global GDP in 2019. The report also found that the beer industry helped generate USD 262 billion in government tax revenue and supported an estimated 23.1 million jobs in the 70 countries studied.[49]

Although market characteristics differ across countries, the problem of illicit alcohol exists in every region, in developed and developing countries, urban and rural areas, and higher-income and lower-income neighborhoods alike.

According to Euromonitor's 2018 Global Study on Illicit Alcohol, 1 in 4 alcohol bottles are illicit, representing 25.8 percent of all global.[50] These findings correspond to World Health Organization (WHO) estimates that unrecorded alcohol[51] accounts for 25.5 percent of total worldwide adult alcohol consumption and is projected to increase to 27.7 percent in 2020.[52] Based on a legitimate global market valued at USD 1.7 trillion, these estimates suggest a global market for illicit trade valued at 566 billion. Taking into account that most developed country markets exhibit low incidences of illicit product, applying a conservative illicit trade rate equal to half of the widely used estimate of 25 percent suggests a low-end value of USD 243 billion.

Illicit trade in alcohol has a wide range of negative socio-economic impacts. First, it poses significant health risks to consumers, when substandard products are manufactured using dangerous, unapproved ingredients. These negative impacts tend to disproportionally affect poorer and uneducated consumers.

In addition, illicit alcohol trade: (i) deprives governments of tax revenues that would otherwise have been paid had the goods been sold in approved channels; (ii) reduces sales by legitimate, tax-paying businesses and tarnishes their reputation when inferior, illicit products are sold under their brand; and (iii) diverts resources to organized crime, which then uses the proceeds to sustain other illegal activities, undermining the rule of law.[53]

According to a multi-regional study by Euromonitor International, the fiscal loss to governments across 24 countries in Africa, Eastern Europe and Latin America is as much USD 3.6 billion every year.[54] The same study found that illicit alcohol, as a proportion of total alcohol consumed, was highest in Africa, followed by Eastern Europe and Latin America (40, 27, and 15 percent, respectively).[55]

Illicit alcohol is prevalent in both developed and developing countries, with no country immune to this threat. For example, the UK government lost USD 1.2 billion in excise tax revenue in 2021,[56] and Dutch authorities estimate the annual revenue losses from illicit trade in alcohol at USD 100 million.[57] Liquor bootlegging in New York City alone is estimated to have cost the city USD 1 billion in lost taxes over the past 15 years.[58] A 2016 report by the EU Intellectual Property Office (EUIPO) shows that legitimate industries in the EU lose USD 1.3 billion of revenue annually due to the production of fake spirits and wine, corresponding to 3.3% of the sectors' sales. If the knock-on effects on other

If the knock-on effects on other industries and on government revenue are added, EUIPO estimates that this amounts to a loss of USD 1.2 billion in government revenues, of which USD 739 million are excise duties, and a loss of 23,400 jobs.[59]

Generally, illicit alcohol trade promotes informality, prevents small business from building legal operations and frustrates integration in the mainstream economy.
For developing countries, widespread smuggling and local production of illicit and counterfeit alcoholic drinks can have a particularly debilitating effect on efforts to improve domestic resource mobilization (SDG Target 17.1), by denying the government a significant source of potential tax income.

- Fake and unlicensed alcoholic products in Kenya are estimated to be 30 percent[60] of the market and include the use of fake Kenya Revenue Authority (KRA) stamps to evade taxes. The illicit products have led to government losses of billions of shillings in unpaid taxes.[61]
- Myanmar's government lost USD 50 million in tax to beer smugglers in 2016, with up to 30 percent of all the beer sold in the country illegally imported.[62]
- The national health authority in Mexico has seized more than 1.4 million gallons of adulterated alcohol since 2010—ranging from small local establishments to large hotels and other entertainment areas, according to a 2017 report by the country's Federal Commission for Protection against Health Risks.[63] As much as 36% of the alcohol consumed in Mexico is illegal, according to a 2017 report by Euromonitor International.[64]

COVID-19 pandemic impact on illicit alcohol

The COVID-19 pandemic provided wide opportunities for illicit traders to adjust and expand their operations as government lockdowns, bans and other restrictions disrupted the alcohol market and created shortages. Overall, the pandemic gave impetus to the ongoing illicit trade in alcohol, creating more sophisticated international networks, logistics routes, and manufacturing techniques. With legal companies sidelined by the bans, and law enforcement preoccupied with social distancing regulations, criminal groups have entrenched their market positions by diversifying distribution channels and maximizing newfound economies of scale. The effect of "dry laws" (i.e., laws which prohibit the sale and purchase of alcoholic beverages in a specific time frame or a specific area) adopted by some countries as a direct result of the pandemic has been to nurture a thriving black market. Another effect of "dry laws" was to cause extra burdens to law enforcement agencies, such as in Colombia and Panama, due to the imposition of alcohol restrictions in their countries. Firstly, additional manpower and other resources were needed to enforce the dry laws. Secondly, it was necessary to invest considerable resources in identifying and seizing illicit products. In South Africa, the head of the South African Revenue Service (SARS), highlighted that the alcohol ban has "benefited criminal networks who have gained a foothold in the market." Consequently, the restrictions have given a massive boost to organized crime, with supply shifting into the control of the illicit industry.[65]

CHAPTER 4: SDG 8 AND ILLICIT TRADE IN COUNTERFEIT AND PIRATED GOODS

Counterfeit and Piracy:

- Counterfeit trademark goods are any goods, including packaging, bearing without authorization a trademark which is identical to the trademark validly registered in respect of such goods, or which cannot be distinguished in its essential aspects from such a trademark and which thereby infringes the rights of the owner of the trademark in question under the law of the country of importation.
- Pirated copyright goods are any goods which are copies made without the consent of the right holder or person duly authorized by the right holder in the country of production and which are made directly or indirectly from an article where the making of that copy would have constituted an infringement of a copyright or a related right under the law of the country of importation.

Trademarks support the development of products and services that consumers want and depend on, creating new jobs and entire industries. Trademark-intensive industries are estimated to contribute around 24 million jobs in the US. In the EU, they contribute about 28 percent of employment and 42 percent of GDP.[66] A 2017 study by INTA estimated that Trademark-Intensive Industries in Indonesia, Malaysia, the Philippines, Singapore, and Thailand contributed from 27 to 60 percent of each country's share of exports and between 17 and 50 percent of GDP.[67] Similar studies in Latin America have found comparable correlations between trademark-intensive industries and gross domestic product (GDP), employment and productivity.[68]

Copyright serves as a critical tool to finance cultural production, including educational materials, musical and artistic works, such as poetry, novels, movies, songs, and computer software. As noted by former WIPO Director General Francis Gurry, "Copyright is the central mechanism in the creation of the market for creative works - if you like, the dominant interface between the world of creativity and the economy. It is the means by which the market exchange of creative works occurs. As such, it is also the principal means for the financing of the production of creative works, enabling the creator to control the commercial exploitation of her works, thereby returning economic value to the creator and ensuring livelihood for the individual creator, and economic sustainability for the creative industries."[69]

In contrast, IP crime in the forms of trademark counterfeiting and copyright piracy is a serious transnational organized crime run by extensive and complex criminal enterprises, affecting all sectors.[70] The ubiquity of counterfeit and pirated goods has a significant negative impact on economic growth and job creation. A 2019 study by OECD and the EUIPO revealed that the world trade in fake goods is now worth USD 509 billion, or 3% of world trade. Almost 7% of products imported into Europe are now counterfeit, corresponding to USD 121 billion per year. That figure excludes digital piracy, which in 2015 alone was estimated to be more than USD 200 billion.[71]

For governments and business, the losses include illegal acquisition of IP, reduced returns to innovators and creators, lost tax revenue, and the diversion of public and private resources from more productive ends. These costs create a significant drag on the growth of knowledge-based economies, but also result in significant job losses.

A series of studies published by the EUIPO in 2016 found that counterfeiting and piracy costs the EU economy over USD 83 billion and 790,000 jobs every year, as well as USD 14.3 billion in government revenue (income tax and value added tax).[72]

A 2019 study by the OECD found that counterfeit and pirated goods reduced sales of legitimate Swedish IP right owners by at least USD 2 billion, or 2% of their annual sales, and lowered the tax revenue of Swedish government by about USD 900 million. Altogether, at least 7,100 jobs were lost in Sweden due to counterfeiting and piracy, which represents about 1% of full-time equivalent employees in Sweden.[73]

A 2017 global study by Frontier Economics estimates that the wider social and economic impacts on displaced economic activity, investment, public fiscal losses and criminal enforcement from counterfeit and piracy could reach as much as USD 1.9 trillion by 2022, draining USD 4.2 trillion from the global economy and putting 5.4 million legitimate jobs at risk.[74]

COVID-19 pandemic impact on counterfeit and piracy

Counterfeiting has been a major problem during the COVID-19 pandemic, with unscrupulous actors seeking to exploit the health crisis by selling fake testing kits, treatments and personal protective equipment (PPE). In the early months of the crisis, fraudulent forms of PPE—surgical masks, hydro-alcoholic gels, testing kits, thermometers, gloves, and sanitizers—flooded online marketplaces, providing further evidence that online platforms continue to be a major source of consumer fraud. As early as March 2020, the European Anti-Fraud office (OLAF) opened an inquiry into the illicit trade in fake or mislabeled PPE and worked with customs and enforcement authorities to prevent them from entering Europe. OLAF identified over 340 companies acting as intermediaries or traders of counterfeit or substandard products linked to the pandemic. Millions of substandard medical products with fake EU conformity certificates were seized in several Member States.

In addition, the INTERPOL-led Operation Pangea XIII, which brought together customs and health regulatory authorities from 90 countries, saw the seizure of 48,000 packages of counterfeit PPE and unauthorized antiviral medications in the first week. Similarly, law enforcement officials in the US seized millions of counterfeit N95 face masks and hundreds of shipments of prohibited medical supplies. Many of the masks were fakes, stamped with the 3M logo and shipped in boxes that read, "Made in the U.S.A.," even though they were not made in the country nor by 3M. The masks were being sold to health care workers, who believed they were purchasing and using genuine 3M masks.

Beyond the increase in fake and fraudulent PPEs, counterfeit versions of high-demand consumer products—like cleaning solutions, toilet paper, indoor sports equipment, refrigerators and freezers, food products and reading materials—rapidly entered markets, filling gaps where the legitimate supply chain couldn't keep pace with frenzied, crisis-level demand.

Not surprisingly, consumption of digital media also rose sharply under the COVID-19 stay-at-home and social distancing regulations. This has propelled an increase in illegally streaming content online: film piracy increased 41 percent in the US, 43 percent in the UK, 50 percent in Spain, 66 percent in Italy and 63 percent in India.[75]

CHAPTER 5: SDG 8 AND ILLICIT TRADE IN FORESTRY PRODUCTS

Illegal logging and illicit timber trade: The International Union of Forest Research Organizations (IUFRO) defines illegal logging and related timber trade as including "all practices related to the harvesting, processing and trading of timber inconsistent with national and sub-national law." This definition also may be extended to include violations of ratified international treaties and conventions. Such practices include operating under a license that has been obtained illegally (e.g., involving corruption), logging in protected areas, exceeding permitted harvest quotas, processing logs without the necessary licenses, tax evasion and exporting products without paying export duties."

A well-functioning and sustainably managed forest sector plays an important part in the surrounding local economy, providing an anchor for economic development, employment opportunities and public sector tax revenues, thereby contributing to SDG 8. Forest products also supply more than 20 percent of the household income for local families in developing countries, thereby supporting rural livelihoods and poverty reduction.[76]

These benefits are, however, threatened by serious and increasingly sophisticated illegal logging and illicit timber trade.

According to UNEP and INTERPOL, forestry crimes such as illegal logging generate an estimated USD 51-152 billion in illicit revenues that are unaccounted for and untaxed in the legitimate economy. [77] This compares to the total annual global official development assistance (ODA) commitments of about US 135 billion,[78] and highlights the magnitude of financial losses that could be ascribed more beneficially. Moreover, lost government tax revenues of between USD 9-26 billion per year[79] deprives developing economies of billions in public resources and squandered development opportunities, while yielding a massive windfall of profits to criminals and corrupt government officials.[80]

It not only puts the livelihoods of forest-dependent communities at risk, but also undermines legitimate commerce within the forestry sector by distorting timber markets and reducing profitability.

- The forestry sector employs some 13.7 million formal workers,[81] but according to the World Bank, an additional 41 million people work *informally* in the timber sector.[82] In the EU alone, forest-based industries provide nearly 3.5 million jobs. Small- and medium- forest enterprises (SMFEs) are the primary source of forest sector employment in most developing countries, accounting for 80-90 percent of formal and informal employment in all forest enterprises.[83] Therefore, legalizing the sizeable illicit portion of the logging business has the potential to create millions of legitimate employment opportunities.
- Use of illegally logged timber reduces the production costs and ultimately the costs of the finished product, thus creating an unfair advantage for operators who do not adhere to laws and industry regulations. This undermines the economic viability of investments required for responsible forest management and forest products consumption.
- Unsustainable forest practices leave large areas deforested, barren and unable to renew harvests for decades. Consequently, local employment opportunities are lost forever.
- Illegal logging vastly contributes to deforestation, which reduces the ability of forests to absorb carbon emissions held responsible for climate change. This accelerates desertification, drought periods and other cataclysmic events that causes populations to lose their means of subsistence and contribute to vast and uncontrolled migration waves.
- Forest work is one of the most hazardous industrial sectors globally. While the companies engaged in sustainable and legal timber trade regularly implement sustainability requirements on human and labor rights, occupational health and safety, environmental commitments, and responsible business practices,[84] illicit actors show little regard for secure and safe employment opportunities. This undermines SDG Target 8.8 (protect labor rights and promote safe and secure working environment for all workers).
- Illegal logging and illicit timber trade also threaten jobs within the tourism industry, valued at 5-10 percent of national economies, when protected forests and animal habitats are damaged.[85]

COVID-19 pandemic impact on forestry crime

Restrictions on movement and social distancing have had negative outcomes for sustainable forest management and forest protection efforts during the COVID-19 pandemic. The measures have resulted in the postponement, and in some cases outright cancellation, of forest management activities, creating opportunities for criminal groups to engage and expand illegal logging activities. As a result, there has been an uptick in illegal logging, with reports of increased logging activity from Brazil, Colombia, Cambodia, Indonesia, Nepal and Madagascar.

The pandemic has also resulted in funding challenges for the forest sector as more resources are diverted from forestry and other sectors to manage the health crisis from the COVID-19 pandemic. As a result, national forest administrations struggled to maintain their staff and undertake forest protection activities.

Forest-based ecotourism has also been highly affected by the pandemic. Travel restrictions, curfews, and restrictions in gathering, social distancing measures had a debilitating effect on tourism, resulting in closures of the ecotourism activities and associated losses of income jobs in the forest sector. This also impacted hotels, and other hospitality businesses who rely on eco-tourism, as well as spill-over effects in adjacent communities with high ecotourism potentials. [86]

A protracted crisis in the forest-based ecotourism sector (e.g., caused by declining visits to national parks) may remove a key motivation for local authorities to protect vast natural areas and potentially favor other economic practices involving deforestation (e.g., agricultural purposes.) Illegal loggers may then exploit reduced political determination (and declining budgets available to law enforcement authorities employed in conservation efforts) to advance their agendas.

CHAPTER 6: SDG 8 AND ILLEGAL, UNREPORTED, AND UNREGULATED **FISHING**

Illegal, unregulated and unreported fishing (IUU) refers broadly to fishing activities that contravene regional, national or international fisheries conservation or management measures, or occurs outside the reach of these laws and regulations.

The importance of a sustainable fishing sector in attaining SDG 8 cannot be overstated. Over 10 percent of the global population depends directly or indirectly on the fishery industry for their livelihoods.[87] The ocean-economy is estimated to have an annual value of USD 2.5 trillion.

- Fish and fish products represent some of the most traded food items in the world, with around 35 percent of global fish production entering international trade. Developing countries have been among the primary beneficiaries, with growth rate of exports increasing faster than from developed countries during the past 40 years.[88]
- The UN Food and Agriculture Organization (FAO) has found that marine and coastal resources represent 5 percent of the world's GDP, and that over 10 percent of the global population depends directly or indirectly on the fishery industry for their livelihoods.[89]
- Women play an important role in this workforce and represent about 14 percent of the people employed. [90]

Unfortunately, the world's marine fish stocks have been in a worrisome decline over the past three decades. In 1974, 90 percent of global marine fish stocks were fished within biologically sustainable levels. By 2015, this percentage had fallen to 67 percent, with stocks fished at biologically unsustainable levels increasing from 10 to 33 percent.[91]

Regional statistics can be even more alarming, with the Mediterranean and Black Sea, the Southeast Pacific and the Southwest Atlantic having close to 60 percent unsustainably fished populations.[92]

IUU (illicit) fishing exacerbates this problem and threatens the sustainability of global fisheries resources by contributing to their overexploitation, impeding the recovery of fish populations, and undermining the economic viability of legal fishing operations.[93] IUU fishing has rapidly accrued and intensified overfishing, presenting the most severe threats to developing countries that lack the capacity and resources for effective monitoring, control, and surveillance of their exclusive economic zones (EEZ).[94]

While the pervasiveness of IUU fishing is well-documented, the clandestine nature and lack of data hides the true extent of the threat.

- Globally, 8-14 million metric tons of unreported catches are potentially traded illicitly yearly, suggesting gross revenues of USD 9-17 billion associated with these catches. The annual loss in economic impact from the diversion of fish from the legitimate trade system is USD 26-50 billion, with governments losing between USD 2-4 billion in uncollected tax revenues.[95]
- In 2014, the United Nations General Assembly declared IUU fishing one of the biggest threats to sustaining fish stocks globally.[96]
- Illustrating the systematic, high-volume scale of IUU fishing globally, as much as 37 percent of all fish caught in West African waters is illicit.[97] This threatens economic and employment opportunities for communities that depend on fishing for their livelihoods. It is estimated that West Africa alone could be losing USD1.3 billion per year to IUU fishing and related processes.[98]

If IUU fishing is allowed to continue unabated, it will be almost impossible for the international community to achieve many of the SDGs. Specifically, IUU fishing poses a threat to several of the SDG 8 targets, including SDG Target 8.5 (full and productive employment), SDG Target 8.7 (eradicate forced labor, end modern slavery and human trafficking), SDG Target 8.8 (protect labor rights and promote safe and secure working environments) and SDG Target 8.9 (promote sustainable tourism).

In terms on human rights abuses, for those people employed by IUU fishing vessels, the situation can be dire. Vessels engaged in IUU fishing are often old and unsafe and must make riskier trips further out to sea for prolonged periods of time.[99] These circumstances make the hiring of qualified crew more difficult and expensive, leading unscrupulous operators to use forced labor and practice other human rights violations, which are reinforced by the isolation of the workplace, strong competition within the industry, and the ready supply of vulnerable workers.[100]

COVID-19 pandemic impact on IUU fishing

COVID-19 has caused a widespread upheaval for the fishing and aquaculture industry worldwide. The pandemic has affected fishing practices, with changes in the fishing operations themselves, shifts in market patterns and suspension of certain controls in order to avoid transmission of COVID-19 between workers in the sector. For example, some South Pacific Island nations have barred vessels from entering their lagoons or prohibited port officials from boarding ships until crews have quarantined for two weeks. The absence of independent observers on trawlers lowers enforcement and monitoring capacity, presenting opportunities for unscrupulous operators to engage in illicit/IUU fishing and related criminal activities with less deterrence. As noted by the OECD, there are also concerns that declining government revenues from sector-specific taxes through fee deferrals, for example, could reduce budgets and further limit management control and monitoring of fishing practices.[101]

CHAPTER 7: SDG 8 AND ILLICIT TRADE IN PETROLEUM PRODUCTS

The criminal modalities of illicit trade in petroleum range from low-level tapping, siphoning, adulteration, and smuggling to extremely sophisticated maritime operations involving extensive networks of criminal and corrupt actors.

The petroleum sector is a multi-billion-dollar industry, featuring six of the world's ten largest companies.[102] Globally, the sector employs nearly 6 million and generates another 60 million indirect jobs.[103] The following examples show how the sector contributes to GDP, government revenue and domestic employment:

- Earnings from the oil industry accounted for about 32 percent of Mexico's total government revenues,[104] and the state-controlled oil company Pemex employs more than 120,000.[105]
- Venezuela's oil revenues account for about 95 percent of export earnings, with the oil and gas sector contributing 25% of overall GDP.[106]
- The petroleum sector in Saudi Arabia accounts for roughly 87% of revenues, 42% of GDP, and 90% of export earnings.[107]
- 185,000 people were directly or indirectly employed in the Norwegian petroleum and petroleum-related industries in 2016, which represents roughly 7% of total employment in Norway.[108]
- In Africa, fuel taxes account for a significant share of total tax revenues: 4% in South Africa, 7% in Kenya and Tanzania, 12% in Mozambique and 16% in Uganda.[109]

As such, the petroleum sector is important to economic growth, employment and quality of life in many countries. It is, therefore, also a critical component in achieving the goals of SDG 8.

Oil theft is globally pervasive and occurring in many developing as well as developed countries. Every year, it is estimated that USD 133 billion of fuels are illegally stolen, adulterated, or defrauded from legitimate petroleum companies,[110] with equally significant losses to governments through subsidy abuse and tax evasion.[111] This equates to 5-7 percent of the global market for crude oil and petroleum fuels, yet the impact of oil theft is significantly larger than the value of theft itself. [112]

Several well-documented examples paint an alarming picture of the pervasiveness of oil and fuel theft:

- The African Development Bank estimates the value of illicit oil trade in Africa is worth nearly USD 100 billion a year.[113]
- In 2013, the Algerian energy authority reported losing USD 1.3 billion a year as a result of fuel smuggling to neighboring countries.[114]
- Mexico loses 20,000 barrels per day due to fuel theft.[115] The National Citizens' Observatory, a think tank in Mexico, estimates the national black market for fuel is worth USD 2-4 billion a year,[116] with at least half deriving from fuel theft.[117] This is a serious loss because oil revenues comprise about a third of the government's budget.[118]
- Estimates on the value of the illegal fuel trade in Southeast Asia ranges from USD 2-10 billion a year.[119]
- Nigeria is Africa's largest oil producer, but it is also a victim of massive fuel theft,[120] with as much as 30% of all refined products stolen and smuggled into neighboring states.[121] The government estimates that it lost USD 1 billion in revenue during the first quarter of 2022 due to crude oil theft.[122] Some estimates put annual losses, including tax deferments, as high as USD 32 billion per year.[123]
- In Northern Ireland, diesel tax fraud was estimated at GBP 80 million (USD 96 million), or 13% of total taxable revenue from mineral oils.[124]
- Turkey imports 2.7 million tons of smuggled fuel annually, depriving its government of USD 2.5 billion in tax income.[125]
- Russia's state-owned investment bank VTB Capital estimated that in 2013 Russian oil companies were losing USD 1.8-3.5 billion annually due to oil theft.[126]
- In 2015, Chinese customs arrested 250 people from two criminal syndicates involved with the illegal import of 440,000 tons of untaxed fuel from ship vessels, worth USD 355 million.[127]
- Fuel adulteration at Brazil's retail filling stations is estimated at USD 4.1 billion (2020), and fuel tax evasion accounts for a further USD 1.3 billion (2019).[128]
- The Philippines loses about USD 750 million annually in tax revenue due to adulterated fuel products entering its supply chain from smuggling.[129]
- The EU loses more than USD 4 billion yearly in tax revenue to fuel fraud.[130]

Oil and fuel theft have severe effects on tax revenue, especially in resource-rich, developing countries where petroleum industry royalties and tax payments stimulate economic growth and finance development. Along with the associated money laundering and illicit financial flows, this illegal activity severely undermines the effectiveness of tax systems and their ability to generate the domestic resources needed to promote inclusive economic growth (SDG target 17.1).

Oil theft also has direct and indirect impacts on the economic development of neighboring countries by eroding regional business confidence, investment, and domestic development. For example, high rates of tanker piracy in the Gulf of Guinea in 2011 resulted in maritime insurance companies reclassifying Benin as high risk and insurance premiums for ships rising significantly, despite Benin not producing any oil and having very little official fuel imports. This in turn drastically reduced Benin's port activity by 70% and reduced overall government revenue by at least 28% in 2012.[131] [132] This example illustrates how illicit petroleum trade can have crippling impacts on economic growth and development, even if a country is not directly exposed to crude oil production or fuel trading. [133]

Exposure to oil theft can also cause unforeseen collateral damage to the legal economy. In Singapore, corruption, fraud, and other malpractices related to bunker fuel companies and rogue traders created more than USD 6 billion unpaid debt to suppliers, traders, and banks not involved with these crimes.[134]

COVID-19 pandemic impact on oil and fuel theft

The COVID-19 pandemic had a notable impact on illicit petroleum trade. Oil and fuel theft increased across Latin America during the COVID-19 pandemic as a way for criminal groups to supply thriving black markets and shore up finances. Reports of increased activity have been noted in Mexico, Ecuador, Colombia and Argentina. In Colombia, Ecopetrol reported a 17% increase in illegal taps detected in its infrastructure between January and August 2020, with nearly 900 taps detected compared to 747 in 2019. While most instances have concerned pipeline theft, criminal groups have also attacked oil platforms at sea or built clandestine refineries.[135] Notably, a recent study of 30 developing countries subject to significant oil theft shows a lower average tax collections in countries experiencing oil theft, either as producers or consumers.[136]

CHAPTER 8: SDG 8 AND ILLICIT TRADE IN **PHARMACEUTICALS**

World Health Organization (WHO) definition of illicit pharmaceuticals:

- Substandard: Also called "out of specification" are authorized medical products that fail to meet either their quality standards or specifications, or both.
- Unregistered/unlicensed: Medical products that have not undergone evaluation and/or approval by the National or Regional Regulatory Authority (NRRA) for the market in which they are marketed/distributed or used, subject to permitted conditions under national or regional regulation and legislation.
- Falsified: Medical products that deliberately/fraudulently misrepresent their identity, composition or source. As such, when the term "counterfeit" is used broadly, this refers to medicines that are (a) deliberately produced with substandard quality; (b) fraudulently labeled with respect to their identity/origin; or (c) otherwise tainted, adulterated, or made ineffective or harmful. Fundamentally, counterfeit medicines are neither regulated or quality controlled and therefore should be expected to be inferior as they move outside the safety of established, regulated supply chains.

The problem of illicit pharmaceuticals applies not only to highly-publicized lifestyle medicines, such as for treating erectile dysfunction and weight loss, but also to lifesaving medicines – including those used to treat malaria, cancer, heart disease and other serious illnesses. The problem also includes generic versions of prescription drugs and over-the-counter (OTC) medicines, which includes fake medical devices such as contact lenses, condoms, syringes, surgical instruments, wheelchairs and radiotherapy machines, where fake or faulty versions can all present considerable health and safety risks.

Illicit trade in medicines is a major threat to public health, diverts resources from already limited healthcare budgets, creates mistrust in government and presents economic and social challenges to pharmaceutical companies operating in the sector.

- The WHO has generated the most widely cited statistics, reporting that the share of substandard or falsified medicines on the market ranges from 10% of total sales in developing countries to as little as 1% in developed countries.[137]
- The European Union Intellectual Property Office (EUIPO) and the Organisation for Economic Cooperation and Development (OECD) estimate the total value of illicit pharmaceuticals traded worldwide to be up to EUR 4.03 billion. Customs seizure data analyzed in the EUIPO/OECD study, which covers the period 2014 2016, shows that counterfeit antibiotics, lifestyle drugs and painkillers were the most frequently encountered. However, other medicines such as anti-malaria drugs were also heavily faked.[138]
- INTERPOL reports that falsified medical products could account for as much as 30% of the market in some countries in Asia, Africa and Latin America.[139] In the transitional economies of former Soviet Republics, there are estimates of above 20% of market value.
- Other analysts using different methodologies have estimated the overall sales of falsified medicines to be worth between USD 200 billion[140] and USD 432 billion annually.[141] [142]

Substandard and falsified medical products undercut efforts to reduce the burden of disease, thereby undermining investments in public health systems and causing a significant negative impact on SDG 8. For the individual, consequences include prolonged illness, time away from work, increased health care costs, potentially longer-term health complications and even premature death. For governments, damages include lost worker productivity, increases in overall health care expenditures, and lost confidence in the health care system.

A 2016 study by EUIPO estimated that fake medicines cost the EU pharmaceutical jobs lost sector 90,000 as well as EUR 1.7 billion in lost government revenues (taxes and social A 2020 study by Pacific Research Institute found that US state and federal governments could be losing between USD 4.5 billion in potential tax revenues due to counterfeit medicines, as well as the displacement of 57,500-247,800[144] jobs in the US.

The problem of illicit pharmaceuticals also impairs the marketplace for genuine products and endangers existing drug supplies by luring consumers and health providers to purchase cheap fakes instead of genuine medicine. The wasted resources are significant, especially in poor countries or households where medicines can rank second only food as the largest household expenses and where the burden of additional treatment is either unaffordable or can impose significant financial hardship on families.[145]

COVID-19 pandemic impact on Illicit pharmaceuticals

The COVID-19 crisis has triggered unprecedented opportunistic and predatory behavior, with criminal groups taking advantage of the fear-driven demand for personal protection equipment, anti-viral medicines and hygiene products.

The WHO has warned that a growing volume of fake medicines linked to coronavirus are on sale in developing countries. Similarly, Interpol has warned of increases in organized cybercrime linked to COVID-19 medicines. For example, INTERPOL's operation Pangea XIII held during the early stages of the pandemic saw the seizure of USD 14 million worth of potentially dangerous pharmaceuticals, including counterfeit facemasks, substandard hand sanitizers and unauthorized antiviral medication. Seizures of fake COVID-19 tests and personal protective equipment have also been reported by the U.S. CBP and other members of the World Customs Organization. Furthermore, the European Anti-Fraud Office (OLAF) seized huge quantities of Chinese traditional medicines that allegedly cure COVID-19 being smuggled into the EU.

As COVID-19 vaccines rolled out in several countries, counterfeits versions have also been marketed online. In December 2020, INTERPOL issued a global alert to law enforcement across its 194 member countries warning them to prepare for organized crime networks targeting COVID-19 vaccines.[146] Mexican gangs, for example, reportedly set up manufacturing laboratories for fake vaccines. In January 2021, in Italy, law enforcement authorities have been looking for mismatches between the official records of vaccines delivered to certain hospitals and the number of doses effectively administered. The police were also seeking to determine if the vaccine drops left on the bottom of used vials may have been collected for distribution on the black market.[147]

CHAPTER 9: SDG 8 AND ILLICIT TRADE IN PRECIOUS METALS AND GEMSTONES

Illicit trade in precious metals and gemstones includes commodities such as gold, silver, platinum and in precious gemstones include diamonds, emeralds, sapphires and rubies. Illegal precious metals and gemstones also include those that are stolen from licit mines and ascribed fake origin certificate or comingled with licit precious minerals further down the pipeline.

When properly managed, the extraction and trade of precious metals and gemstones can contribute to the creation of sustainable and innovative economies, and provide significant export and tax revenue opportunities, particularly for countries facing development needs.[148]

In contrast, illicit trafficking in precious minerals has been characterized as a "*fleecing of national assets and resources*,"[149] which adversely affects sustainable economic growth and development for resource-rich source countries and the mining industries that work there legally. Furthermore, fiscal revenues derived from taxes and license fees are lost, along with legal and decent employment opportunities and the development of infrastructure serving the mines and local communities.

Many low- and middle-income countries depend heavily on mining to develop their resource endowments as a motor for driving wider national economic growth (embodied in SDG 8).[150] Studies carried out by the International Council on Mining and Minerals have found that the income from mining can contribute as much as 25 percent of total government revenue.[151] However, widespread theft of precious metals and gemstones robs governments of this ability to strengthen domestic resource mobilization (SDG target 17.1).

The precious metals market is also exposed to high risks of criminal activity and corruption. Gold and diamonds are even more exposed to illicit trade and fund crimes because of the greater ease by which they can be traded and the high value returns. The World Gold Council highlighted "a specific concern in recent years has been potential links between gold and unlawful armed conflict, such as civil wars and militia activities".[152] Illegally mined or traded diamonds and gold are being used as alternative currency by criminals who use them to trade in other illicit goods such as guns and drugs;[153] and to fund rebel groups, militias and armed gangs.[154] There are several reported instances of illegal mining being associated to trafficking of explosives, often used to commit other crimes such as robberies, bombings of facilities and conflict operations.[155] A 2016 assessment by INTERPOL and the United Nations Environment Programme estimated illegal mining to account for up to USD 48 billion a year in criminal proceeds.[156]

In addition, illicit precious metals and gemstones trade is also linked to various other crimes including human trafficking, human smuggling, slavery, child labor, drug trafficking, gun running, and money laundering.[157]

Poorly managed or illegal mining and the subsequent trade in illegally sourced resources can lead to environmental degradation, human rights abuse and conflict, while providing a significant source of revenue for organized crime and terrorist groups.[158] Moreover, the presence of criminal groups in the mining and minerals sector drives corruption and negatively impacts stability, governance, development and the rule of law.[159]

The following examples illustrate the significance of the problem and the negative impacts on SDG 8:

- Latin America is especially affected by this criminal activity area, experiencing one of the world's largest illegal gold extraction rates.[160]
- South Africa's illegal trade in precious metals is estimated at USD 1.3 billion a year, which is a significant drain on the country's GDP, export and trade balances.[161] Illegally extracted gold and platinum alone cost the legal industry 5-10 percent of its annual production, according to South Africa's Chamber of Mines. That excludes additional security expenses and costs incurred when mines need to be shut down to address illegal activities.[162] It is estimated that about 10 percent of South Africa's gold production is stolen and smuggled out of the country each year.[163]
- Myanmar's production of jade is estimated at USD 12-31 billion per year (indicated by Chinese import figures), which is equal to about half of the country's GDP. However, because 50 to of this wealth is smuggled out directly to the China border, bypassing the official sales and taxes completely, Myanmar's trade in jade has been called the "*'biggest natural resource heist' in modern history*."[164] According to a 2015 report by Global Witness, Myanmar lost USD 6.2 billion in mine site taxes in 2014.[165]
- According to United Nations Development Programme (UNDP), illegal mining costs the Afghan government USD 100 million in lost revenue every year.[166]
- Rampant illegal sand mining costs the Indian state of Bihar USD 88 million a year.[167]
- The value of illegally-traded mercury, used in half of all artisanal and small-scale gold mining (ASGM), is estimated at USD 100–215 million annually.[168]

COVID-19 pandemic impact on Illicit trade in precious metals and gemstones

The COVID-19 pandemic has had a negative impact on efforts to curb illegal sourcing of minerals. Rising gold prices, surging unemployment and reduced and/or redirected enforcement activities, has stimulated illegal gold mining during the pandemic.

Illicit mining in the Amazon, for example, has spiked— with the potential for long-lasting consequences. Similar experiences have been reported in other countries. In Indonesia, soaring gold prices have fueled a boom in illegal panning in rivers. In Zimbabwe, the economic impact of the virus coupled with crippling hyperinflation and unemployment spurred an illegal gold rush in the mountains. Despite supply chain disruptions, the illegal gold trade has continued unimpeded in the Democratic Republic of the Congo. Armed groups have been able to keep smuggling gold by diverting the use of trucks authorized for transporting "essential goods" to circumvent government protocols and border closures. [169]

CHAPTER 10: SDG 8 AND ILLICIT TRADE IN TOBACCO PRODUCTS

Illicit trade in tobacco generally includes any practice or conduct prohibited by law which relates to production, shipment, receipt, possession, distribution, sale, or purchase of tobacco products including any practice or conduct intended to facilitate such activity.

Illicit trade in tobacco is perhaps the most widespread and well-documented sector vulnerable to illicit trade.[170] It has been estimated that 1 in every 10 cigarettes and tobacco products consumed globally is illicit.[171] In some countries, illicit trade can be as high as 40 to 50 percent of the overall tobacco market.[172]

While most of the policy attention is centered on illicit trade in cigarettes,[173] estimated to be in the range of tens of billions of dollars annually,[174] other tobacco products, such as smokeless and roll-your-own tobacco, are also traded illicitly.[175] Examples include smuggling of smokeless tobacco products from India to Bangladesh, Sri Lanka, and Nepal, and the smuggling of hand-rolling tobacco in Europe, especially the United Kingdom, where smuggling costs HMRC (Her Majesty's Revenue and Customs) GBP 2.2 billion (USD 2.7 billion) in lost revenue per year.[176] [177]

Illicit tobacco has a sizeable negative impact on SDG 8, primarily in the form of lost excise tax revenues not paid on illicit products. Excise tax collections can comprise a substantial percentage of government revenues, which can be allocated to public investment. This principle is put forward in the 2015 "Financing for Development Addis Ababa Action Agenda" (later endorsed by the United Nations as part of the SDGs), which explains that tax and other revenue collection[178] generate resources to stimulate government investment in job creation and economic growth.[179] More granularly, Clause 32 specifically identifies price and tax measures on tobacco as an important source of revenue for financing development in many countries (*N.B.: the strategy also states that price and tax measures on tobacco can be an effective and important means to reduce tobacco consumption and health-care costs)*.

The lost tax revenues are a drain on public budgets and can in some cases severely limit government ability to mobilize sufficient domestic tax revenue (SDG Target 17.1) to provide for public services, infrastructure and healthcare.[180] This drain on public resources is staggering, as every year governments lose an estimated USD 40-50 billion in tax-based revenue from unreported illicit trade of tobacco products.[181] [182]

Illicit trade in tobacco also has indirect negative impacts on SDG 8: (i) expenditures on law enforcement to police illicit trade in tobacco are substantial and further strain limited government funds;[183] (ii) elimination of markets for (lower price) illicit tobacco can reduce overall tobacco consumption, thus also contributing to the achievement of SDG 3 (Good Health and Well-Being).[184]

COVID-19 pandemic impact on Illicit trade in tobacco products

Government-imposed, COVID-19 related supply restrictions on tobacco products during the pandemic had the unanticipated consequence of simulating markets—both supply and demand—for illicit substitutes. A list of countries includes South Africa and various Eastern European countries, and all cases were reported to involve transnational organized crime groups. The World Customs Organization (WCO) 2021 Illicit Trade Report shows that consumers relied more heavily on online purchases during the pandemic, and in the case of excise goods such as tobacco the availability of low-priced products online attracted consumers to illicit markets. The WCO also reported an increase in the number of seizures of illicit e-cigarettes and cartridges during the pandemic, reflecting the growing potential to exploit the popularity of these new, innovative products.[185]

One country that experienced an increase in illicit tobacco trade during the pandemic is South Africa, where the government's national COVID-19 lockdown plan included a ban on the sale of all tobacco and vaping products for almost 5 months. A University of Cape Town study subsequently found that an estimated 93 percent of tobacco consumers were driven to buy cigarettes from illegal sellers in response to the ban. Criminals were also quick to exploit the use of social media and messaging apps to inform consumers on where and how to access illicit cigarettes.[186] When the sales ban was eventually ended, under pressure from the national revenue agency, the government of South Africa found that it lost about USD 423 million in excise tax revenue collections during the lockdown period.[187]

An example from Israel helps to illustrate the relationship between illicit tobacco and excise tax collections. During COVID-19, the Israeli Tax Authority reported an *increase* of 16.5 percent in tax collected from tobacco products during the first months of the pandemic. This increase was attributed to a reduction in tobacco smuggling due to the strict COVID-19 enforcement measures put in place by Israeli border authorities. This made it much harder for smugglers to bring illicit tobacco into the country, demonstrating how stricter border control can have a significant impact on deterring illicit trade, in turn reducing the tax leakages caused by illicit tobacco.[188]

CHAPTER 11: SDG 8 AND TRAFFICKING IN PERSONS

Trafficking in persons is defined as "the recruitment, transportation, transfer, harboring or receipt of persons, by means of the threat or use of force or other forms of coercion, of abduction, of fraud, of deception, of the abuse of power or of a position of vulnerability or of the giving or receiving of payments or benefits to achieve the consent of a person having control over another person, for the purpose of exploitation. Exploitation shall include, at a minimum, the exploitation of the prostitution of others or other forms of sexual exploitation, forced labor or services, slavery or practices similar to slavery, servitude or the removal of organs." ***UN Protocol to Prevent, Suppress and Punish Trafficking in Persons, Especially Women and Children.***

The International Labour Organization (ILO) and the Walk Free Foundation (WFF) estimate that 24.9 million people are victims of forced labor globally.[189] According to the ILO, trafficked forced laborers are exploited to produce a total illicit profit of USD 150 billion per year.[190]

These illicit profits are criminal and consequently do not add to the GDP of a nation, resulting in a significant drain on the global economy and a horrific preclusion of decent employment opportunities envisaged by SDG 8. In addition, dealing with forced labor generates significant burdens on society and social welfare. These include expenditures on the prevention and protection of forced labor victims, the establishment of rehabilitation programs, medical care of victims and the prosecution of its criminal offenders. Trafficking in forced labor also results in loss of human resources and reductions in tax revenue. The process of trafficking and the exploitation involved also creates a national security threat, as this illegal activity generates large sums of illegal income for criminal networks, that in turn threaten legitimate investment, constrict legitimate demand, reduce business confidence, affect where businesses locate and increase volatility of supply chains and operations.[191]

COVID-19 pandemic impact on trafficking in persons

COVID-19 has drastically affected the lives of millions worldwide and there are concerns that associated government measures to control it may have created short- and long-term circumstances that will inadvertently facilitate trafficking in persons.

As noted by the 2021 Trafficking in Persons Report, issued by the US State Department, "COVID-19 generated conditions that increased the number of people who experienced vulnerabilities to human trafficking and interrupted existing and planned anti-trafficking interventions. Governments across the world diverted resources toward the pandemic, often at the expense of anti-trafficking efforts, resulting in decreased protection measures and service provision for victims, reduction of preventative efforts, and hindrances to investigations and prosecutions of traffickers. At the same time, human traffickers quickly adapted to capitalize on the vulnerabilities exposed and exacerbated by the pandemic."[192]

The COVID-19 pandemic has also hastened the world's digital transformation, and UNODC's Global Report on Trafficking in Persons report has found that traffickers have been quick to adapt their strategies to integrate digital technology into their modus operandi at every stage of the process: from recruiting to exploiting victims. Criminals are now able to target a larger number of victims worldwide — Including women and children — using social media networks and recruitment websites.[193]

CHAPTER 12: SDG 8 AND ILLICIT TRADE IN **WILDLIFE**

The International Consortium on Combating Wildlife Crime broadly defines "wildlife crimes" as "acts committed contrary to national laws and regulations intended to protect natural resources and to administer their management and use." Illicit trade in wildlife is a particular form of wildlife crime that involves, at the international level, violations to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). CITES establishes the legal framework and procedures for the regulation of international trade in over 37 000 species of animals and plants. It aims to ensure that international trade in these species does not threaten their survival. For the purpose of this report, however, illicit trade in wildlife will exclude fish, as this is covered under the Illegal, Unreported and Unregulated Fishing section above.

According to the United Nations Environment Programme (UNEP) and INTERPOL, the estimated value of illicit trading in wildlife globally is between USD 7-23 billion.[194] Furthermore, Illicit trade in wildlife has substantial negative impacts on the associated livelihoods and economies of local communities that depend upon wildlife, associated industries and tourism as a component to achieve sustainable development.[195 196]

Sustainable ecosystems are critical for supporting tourism, which according to UNEP contributes 5-10 percent of GDP to many national economies.[197] Wildlife watching and wildlife tourism for example, provide approximately 60 percent of the income of some African countries.[198] A 2022 assessment of the sustainable use of wild species by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) found that wildlife watching contributed USD 120 billion in 2018 to global GDP (five times the estimated value of the illegal wild species trade) and sustaining 21.8 million jobs.[199] Putting this in perspective with relation to illicit trade, one elephant's ivory might yield up to USD 21,000 on the black market, but that same elephant could generate up to USD 1.6 million in tourism over its lifetime.[200] WWF reports that the knock-on effects of illegal wildlife trade can undermine local employment in legitimate sectors, fuel corruption, and rob governments of tax revenue that could be invested towards meeting the sustainable development goals.[201]

More than 90 percent of natural World Heritage sites support recreation and a growing wildlife-based tourism industry. But many of these benefits are threatened by excessive poaching. As stated by former CITES Secretary-General John E. Scanlon, illicit trade in wildlife means that "local communities are being deprived of making their own development choices, including through the legitimate use of their wildlife resources."[202]

Wildlife crime has grown into a sophisticated form of transnational criminality. Today, networked actors have entered the market by engaging in industrial-scale sourcing, transportation and sale of wildlife products across entire regions.[203] These developments have been facilitated by, among others, loosely implemented trade prohibitions that create black-market opportunities for criminals, and systems such as access controls and quotas for legal trade that apply in some countries but have no legal bearing in others.[204]

COVID-19 pandemic impact on illicit trade in wildlife

Prior to the COVID-19 pandemic, visitors to protected areas worldwide generated USD 600 billion per year, with the highest levels of tourist visitors in species-rich countries.[205] Restrictions on international travel have had a severe impact on nature-based tourism and the jobs and local livelihoods that rely on it, putting as much as USD 30 billion in Africa-wide GDP at risk. At the same time, the closure of national parks and wildlife reserves, along with a massively underfunded conservation sector, created opportunities for poachers. For example, when Uganda's international borders were sealed to protect against the pandemic, visitors to national parks and wildlife reserves dropped from 25,000 per month to zero. Meanwhile, Uganda saw a doubling of poaching incidents between February and May 2020 compared to the same period in 2019.

The effects of the COVID-19 pandemic on illegal wildlife trade share many similarities to other forms of illicit trade: reduced monitoring and enforcement efforts combined with increased pressures on natural habitats as large migrations of unemployed people move from urban spaces to rural ones create both opportunities and incentives for illicit activity.

NOTES

[1] UNCTAD. (2021). The Bridgetown Convenant, Section D, Work Program of UNCTAD, para 127 (rr).https://unctad.org/system/files/official-document/td-l-435_en.pdf

[2] UNCTAD. (2019). Trade and the Sustainable Development Goals. Geneva: UNCTAD.

[3] WTO. (2018). Mainstreaming trade to attain the Sustainable Development Goals. Geneva: WTO.

[4] World Economic Forum. (2014). Out of the Shadows: Why Illicit Trade and Organized Crime matter to us all, Global Agenda Council on Illicit Trade & Organized Crime 2012-2014. Cologny and Geneva: World Economic Forum.

[5] For the purpose of this report "illicit trade" means any practice or conduct prohibited by law relating to the production, shipment, receipt, possession, distribution, sale or purchase of goods or services, involving a transnational element, including any practice or conduct intended to facilitate such activity.

[6] World Bank. 2022. Global Economic Prospects, June 2022. Washington, DC: World Bank. doi: 10.1596/978-1-4648-1843-1. License: Creative Commons Attribution CC BY 3.0 IGO. Available at: https://www.worldbank.org/en/publication/global-economic-prospects

[7] Word Bank (11 January 2022). *Global Growth to Slow through 2023, Adding to Risk of 'Hard Landing' in Developing Economies*. Available at: https://www.worldbank.org/en/news/press-release/2022/01/11/global-recovery-economics-debt-commodity-inequality

[8] Johnson, R.. (2014). Food fraud and "Economically motivated adulteration" of food and food ingredients. Congressional Research Service. 1-40.

[9] PWC. (2016). *Fighting $40bn food fraud to protect food supply* [Press release]. n.p.: PWC. Available at: https://press.pwc.com/News-releases/fighting--40bn-food-fraud-to-protect-food-supply/s/44fd6210-10f7-46c7-8431-e55983286e22

[10] *An Update on Food Fraud. Food Safety Net Services.* (2021, July 28). Retrieved from https://fsns.com/an-update-on-food-fraud/

[11] Kivuva, E. (2018, August 7). Counterfeit pesticides cost farmers Sh120bn. *The Star, Kenya*. Available at: https://www.the-star.co.ke/news/2018/08/07/counterfeit-pesticides-cost-farmers-sh120bn_c1798482

[12] Standard Reporter. (2016, January 18). COTU wants more action on sugar cartels to protect jobs. *Standard Digital*. Available at https://www.standardmedia.co.ke/business/article/2000188522/cotu-wants-more-action-on-sugar-cartels-to-protect-jobs

[13] EUIPO. (2016). *The economic cost of IPR infringement in the pharmaceutical industry: Quantification of infringement in Manufacture of pharmaceutical preparations (NACE 21.20)*. Alicante: EUIPO. Retrieved from: https://euipo.europa.eu/tunnel-web/secure/webdav/guest/document_library/observatory/resources/research-and-studies/ip_infringement/study9/pharmaceutical_sector_en.pdf

[14] Miller HI, Winegarden W. Fraud in your pill bottle: The unacceptable cost of counterfeit medicines. Center for Medical Economics and Innovation Issue Brief. Pacific Research Institute; 2020. Available: https://medecon.org/wp-content/uploads/2020/10/CounterfeitMed_F.pdf.

[15] https://documents.worldbank.org/en/publication/documents-reports/documentdetail/700061468334490682/ending-poverty-and-hunger-by-2030-an-agenda-for-the-global-food-system

[16] Johnson, R.. (2014). Food fraud and "Economically motivated adulteration" of food and food ingredients. Congressional Research Service. 1-40.

[17] PWC. (2016). *Fighting $40bn food fraud to protect food supply* [Press release]. n.p.: PWC. Available at: https://press.pwc.com/News-releases/fighting--40bn-food-fraud-to-protect-food-supply/s/44fd6210-10f7-46c7-8431-e55983286e22

[18] *An Update on Food Fraud. Food Safety Net Services.* (2021, July 28). Retrieved from https://fsns.com/an-update-on-food-fraud/

[19] Roberts, M.T., Viinikainen, T., Bullon, C. 2022. International and national regulatory strategies to counter food fraud. Rome, FAO and UCLA. https://doi.org/10.4060/cb9035en

[20] Standard Reporter. (2016, January 18). COTU wants more action on sugar cartels to protect jobs. *Standard Digital*. Available at https://www.standardmedia.co.ke/business/article/2000188522/cotu-wants-more-action-on-sugar-cartels-to-protect-jobs

[21] Mwiti, L. (2016, February 26). KRA confiscates 16 containers loaded with illegal sugar. *Standard Digital*. Available at: https://www.standardmedia.co.ke/business/article/2000193025/kra-confiscates-16-containers-loaded-with-illegal-sugar

[22] Sokhorng, C. (2016, May 9). Illegal rice imports still pouring across border. *The Phnom Penh Post*. Available at http://www.phnompenhpost.com/business/illegal-rice-imports-still-pouring-across-border

[23] Nilar. (2015, May 13). Illegal Chinese rice purchases continue: ministry. *Eleven.* Available at http://www.elevenmyanmar.com/business/9390; Macairan, E. (2014, February 21). 5 firms tagged in illegal rice trade. *ABS CBN News / The Philippine Star*. Available at http://news.abs-cbn.com/nation/02/20/14/5-firms-tagged-illegal-rice-trade

[24] The Grocery Manufacturers Association. (2010). Consumer Product Fraud: Deterrence and Detection. Arlington: The Grocery Manufacturers Association. Retrieved from: https://www.gmaonline.org/downloads/research-and-reports/consumerproductfraud.pdf

[25] Munoz-Pineiro, A. & Toussaint, B. (2018). *'FAKE RICE' on African and Asian Markets. Rumour of Evidence?: Factsheet – December 2017.* Brussels: The Joint Research Centre (JRC). Retrieved from: http://publications.jrc.ec.europa.eu/repository/handle/JRC110625

[26] Huang, E. (2017, March 26). In China, consumers have to be on guard not just against fake food, but also fake news about food. *Quartz*. Available at: https://qz.com/934038/in-china-fake-news-about-food-goes-viral-because-people-find-it-hard-to-trust-anyone/

[27] Roberts, M.T., Viinikainen, T., Bullon, C. 2022. International and national regulatory strategies to counter food fraud. Rome, FAO and UCLA. https://doi.org/10.4060/cb9035en

[28] Roberts, M.T., Viinikainen, T., Bullon, C. 2022. International and national regulatory strategies to counter food fraud. Rome, FAO and UCLA. https://doi.org/10.4060/cb9035en

[29] *Source: Interpol (22 July 2020). Food fraud in times of COVID-19. Available at: https://www.interpol.int/en/News-and-Events/News/2020/Food-fraud-in-times-of-COVID-19*

[30] World Bank. (2007). World Development Report 2008: Agriculture for Development. Washington, DC: The International Bank for Reconstruction and Development / The World Bank. Retrieved from: https://siteresources.worldbank.org/INTWDR2008/Resources/WDR_00_book.pdf

[31] Fishel, F. M. (2015). *The Global Increase in Counterfeit Pesticides.* Gainesville: IFAS Extension University of Florida. Retrieved from: http://edis.ifas.ufl.edu/pdffiles/PI/PI21000.pdf

[32] Frezal, C. and G. Garsous (2020), "New digital technologies to tackle trade in illegal pesticides", *OECD Trade and Environment Working Papers*, No. 2020/02, OECD Publishing, Paris,https://doi.org/10.1787/9383b310-en.

[33] Frezal, C. and G. Garsous (2020), "New digital technologies to tackle trade in illegal pesticides", *OECD Trade and Environment Working Papers*, No. 2020/02, OECD Publishing, Paris,https://doi.org/10.1787/9383b310-en. See also M. Malkov, M., Prischepa, S., and Kutonova, T. (2015). *Counteraction to Counterfeit and Contraband Pesticides: Methodology*. N.p.: OSCE / ENVSEC. Retrieved from: https://www.osce.org/secretariat/192516?download=true; Agarwal, M. and Garg, S. (2015). *Study on Sub-Standard, Spurious/Counterfeit Pesticides in India 2015 – Report.* n.p.: FICCI. Retrieved from: http://ficci.in/spdocument/20641/Pestiside-Report.pdf; Europol. (2012). *Europol warns of growing trade of counterfeit pesticides worth billions of euros a year*. The Hague: EUROPOL. Available at: https://www.europol.europa.eu/newsroom/news/europol-warns-of-growing-trade-in-counterfeit-pesticides-worth-billions-of-euros-yea

[34] The Business Research Company (2022). *Pesticide And Other Agricultural Chemicals Global Market Report 2022. Market Size, Trends, And Global Forecast 2022-2026.* Available at: https://www.thebusinessresearchcompany.com/report/pesticide-and-other-agricultural-chemicals-global-market-report

[35] Kivuva, E. (2018, August 7). Counterfeit pesticides cost farmers Sh120bn. *The Star, Kenya*. Available at: https://www.the-star.co.ke/news/2018/08/07/counterfeit-pesticides-cost-farmers-sh120bn_c1798482

[36] UNICRI. (2016). *Illicit Pesticides, Organized Crime, and Supply Chain Integrity*. Torino: UNICRI. Retrieved from: http://www.unicri.it/in_focus/files/The_problem_of_illicit_pesticides_low_res1.pdf

[37] Das, K. N. (2015, November 19). Fake pesticides endanger crops and human health in India. *Reuters.* Available at: https://www.reuters.com/article/us-india-pesticides/fake-pesticides-endanger-crops-and-human-health-in-india-idUSKCN0T830J20151120

[38] EUIPO. (2017). *The economic cost of IPR infringement in the pesticides sector: Quantification of infringement in Manufacture of pesticides and other agrochemicals.* Alicante: EUIPO. Retrieved from: https://euipo.europa.eu/tunnel-web/secure/webdav/guest/document_library/observatory/resources/research-and-studies/ip_infringement/study10/pesticides_sector_en.pdf; see also European Commission DG Health and Food Safety. (2015). *Ad-hoc study on the trade of illegal and counterfeit pesticides in the EU: Executive summary.* Brussels: EC-DG Santé.

[39] UNICRI. (2016). *Illicit Pesticides, Organized Crime, and Supply Chain Integrity*. Torino: UNICRI. Retrieved from: http://www.unicri.it/in_focus/files/The_problem_of_illicit_pesticides_low_res1.pdf

[40] UNICRI. (2016). *Illicit Pesticides, Organized Crime, and Supply Chain Integrity*. Torino: UNICRI. Retrieved from: http://www.unicri.it/in_focus/files/The_problem_of_illicit_pesticides_low_res1.pdf

[41] Agarwal, M. and Garg, S. (2015). *Study on Sub-Standard, Spurious/Counterfeit Pesticides in India 2015 – Report.* n.p.: FICCI. Retrieved from: http://ficci.in/spdocument/20641/Pestiside-Report.pdf

[42] Europol (26 July 2022). *Production of fake pesticides on the rise in the EU*. Available at https://www.europol.europa.eu/media-press/newsroom/news/production-of-fake-pesticides-rise-in-eu?mtm_campaign=newsletter

[43] Europol (3 June 2020). *A record number of 1 346 tonnes of illegal pesticides taken off the market in 2020 global operation silver axe.* Available at: https://www.europol.europa.eu/newsroom/news/record-number-of-1-346-tonnes-of-illegal-pesticides-taken-market-in-2020-global-operation-silver-axe; The Conversation (27 April 2020). *A global mask shortage may leave farmers and farm workers exposed to toxic pesticides.Available at: https://theconversation.com/a-global-mask-shortage-may-leave-farmers-and-farm-workers-exposed-to-toxic-pesticides-134976;* U.S. Environmental Protection Agency (EPA) (9 February 2021). *EPA orders Amazon to halt illegal pesticides sales. Available at: https://www.epa.gov/enforcement/stop-sale-use-or-removal-orders-issued-amazoncom-services-llc*. See also WGXA NEWS (15 May 2020). *ICE: Georgia woman sold illegal pesticide, claimed it protected against COVID-19.* Available at: https://wgxa.tv/news/local/ice-georgia-woman-sold-illegal-pesticide-claimed-it-protected-against-covid-19

[44] NBC New York (10 June 2022). NJ Man Nets $2.7M Selling Unregistered Pesticides to Feds for COVID-19 Fight. Available at: https://www.nbcnewyork.com/news/coronavirus/nj-man-nets-2-7m-selling-unregistered-pesticides-to-feds-for-covid-19-fight/3729175/

[45] Bordeaux Business (2022). Alcohol market in France: letters of nobility and new trends. Available at: https://bordeaux.business/en/walking-alcohol-france-new-trends/

[46] Four Loko. *Alcohol Beverage Industry Economic Impact.* Available at: https://fourloko.com/alcohol-beverage-economic-impact/

[47] IAS (2017). *Splitting the bill: alcohol's impact on the economy.* Available at: https://www.ias.org.uk/uploads/pdf/IAS%20reports/rp23022017.pdf

[48] SALBA (18 February 2021). *Alcohol industry releases data on cumulative impact of three alcohol bans, showing R36.3 billion in lost revenue*. Available at: https://salba.co.za/alcohol-industry-releases-data-on-cumulative-impact-of-three-alcohol-bans-showing-r36-3-billion-in-lost-revenue/

[49] Yahoo Finance (10 February 2022.) *Brewers Look to Drive Recovery as New Oxford Economics Study Confirms Beer's Significant Global Economic Impact.* Available at: https://finance.yahoo.com/news/brewers-look-drive-recovery-oxford-140000498.html

[50] Euromonitor International. (2018). Size and Shape of the Global Illicit Alcohol Market. London: Euromonitor International.
Available at: https://www.tracit.org/uploads/1/0/2/2/102238034/illicit_alcohol__-_white_paper.pdf

[51] Unrecorded alcohol is alcohol not reflected in official statistics of the country of production, the country of consumption
or both.

[52] World Health Organization. (2018). Global status report on alcohol and health 2018. Geneva: World Health Organization. Available at: http://apps.who.int/iris/bitstream/handle/10665/274603/9789241565639-eng.pdf?ua=1

[53] OECD (2022), Illicit Trade in High-Risk Sectors: Implications of Illicit Alcohol for Public Health and Criminal Networks, Illicit Trade,
OECD Publishing, Paris, https://doi.org/10.1787/1334c634-en.

[54] Euromonitor International. (2018). *Size and Shape of the Global Illicit Alcohol Market*. London: Euromonitor International. Available at: https://www.tracit.org/uploads/1/0/2/2/102238034/illicit_alcohol__-_white_paper.pdf

[55] Euromonitor International. (2018). *Size and Shape of the Global Illicit Alcohol Market*. London: Euromonitor International. Available at: https://www.tracit.org/uploads/1/0/2/2/102238034/illicit_alcohol__-_white_paper.pdf

[56] HMRC. (2017). *Measuring tax gaps 2017 Edition.* n.p.: HM Revenue and Customs. p. 32. Available at: https://www.gov.uk/government/statistics/measuring-tax-gaps

[57] OECD. (2016). *Illicit Trade: Converging Criminal Networks.* OECD Publishing: Paris. p. 228.

[58] Elstein, A. (2016, November 12). High taxes and limited enforcement have New York City awash in illegal booze and cigarettes. *Crain's New York Business*. Available at: http://www.crainsnewyork.com/article/20161113/SMALLBIZ/161119958/new-york-city-is-awash-in-illegal-booze-and-cigarettes-thanks-to-bootlegging-as-high-taxes-and-limited-enforcement-on-alcohol-and-cigarette-sales-make-the-state-prime-for-bootlegging

[59] EUIPO. (n.d.). *Spritis and wine sector*. Available at: https://euipo.europa.eu/ohimportal/en/web/observatory/ipr_infringement_wines_and_spirits

[60] Kamau, M. (2017, November 21).Counterfeit and illicit alcoholic drinks back on the shelves. *The Standard.*
Available at: https://www.standardmedia.co.ke/business/article/2001260841/illicit-alcoholic-drinks-back-on-the-shelves

[61] CapitalNews. (2018, January 17). President Uhuru Kenyatta petitioned over illicit liquor racket. *CapitalNews*. Available at: https://www.capitalfm.co.ke/news/2018/01/president-uhuru-kenyatta-petitioned-illicit-liquor-racket/

[62] Euromonitor. (2018). *Alcoholic Drinks in Myanmar*. London: Euromonitor International. Available at: http://www.euromonitor.com/alcoholic-drinks-in-myanmar/report; Myo Pa Pa San. (2017, November 24). Myanmar Govt Lost $50 million in Tax to Beer Smugglers in 2016. *The Irrawaddy.* Available at: https://www.irrawaddy.com/news/burma/myanmar-govt-lost-50-million-tax-beer-smugglers-2016.html

[63] Comisión Federal para la Protección contra Riesgos Sanitarios. (n.d.). *Sistema Federal Sanitario suma acciones en favor de la salud.* Available at: https://www.gob.mx/cofepris/prensa/113399

[64] Gajanan, M. (2017, August 15). 10,000 Gallons of Tainted Alcohol Were Seized From Mexican Resorts. *Time.* Available at: http://time.com/4900991/mexican-resort-alcohol/

[65] TRACIT (2021), Prohibition, Illicit Alcohol and Lessons Learned from Lockdown, Transnational Alliance to Combat Illicit Trade,
https://www.tracit.org/uploads/1/0/2/2/102238034/tracit_prohibition_illicit_alcohol_and_lessons_learned_from_lockdown_jan2021_hr.pdf.

[66] Antonipillai, J. And Lee, M. K. (2016). Intellectual Property and the US Economy: 2016 Update. n.p.: Economics andStatistics Administration / USPTO. Retrieved from: https://www.commerce.gov/sites/commerce.gov/files/media/files/2016/ipandtheuseconomysept2016.pdf ; EUIPO / EPO. (2016). Intellectual property rights intensive industries andeconomic performance in the European Union: Industry-Level Analysis Report, October 2016, Second edition. Munichand Alicante: EPO and EUIPO. Retrieved from: https://euipo.europa.eu/tunnel-web/secure/webdav/guest/document_library/observatory/documents/IPContributionStudy/performance_in_the_European_Union/performance_in_the_European_Union_full.pdf

[67] INTA. (2017). The Economic Contribution of Trademark-Intensive Industries in Indonesia, Malaysia, the Philippines,Singapore, and Thailand. New York: INTA. Available at: https://www.inta.org/communications/pages/impact-studies.aspx

[68] INTA. (2016). INTA's Impact Studies Committee Publishes Latin America Economic Impact Study and Seeks Input ongTLD Study. INTA Bulletin, 71 (21). Available at: https://www.inta.org/INTABulletin/Pages/Impact_Studies_Committee_Update_7121.aspx

[69] WIPO. (2016). Conference on the Global Digital Content Market Opens at WIPO [Press release PR/2016/790]. Geneva: WIPO. Available at: http://www.wipo.int/pressroom/en/articles/2016/article_0005.html

[70] Interpol (22 October 2019). Countering intellectual property crime through innovation and cooperation. https://www.interpol.int/en/News-and-Events/News/2019/Countering-intellectual-property-crime-through-innovation-and-cooperation
[71] Frontier Economics. (2016). *The Economic Impacts of Counterfeiting and Piracy*. Brussels, Cologne, Dublin, London, Madrid, Melbourne & Sydney: Frontier Economics. Retrieved from: https://www.inta.org/communications/documents/2017_frontier_report.pdf
[72] Schmitz-Fohrmann, V., Böckenholt, R. and Schwab, F. (2018, May 24). Border seizure measures in the European Union. *World Trademark Review.* Available at: http://www.worldtrademarkreview.com/Intelligence/Anti-counterfeiting/2018/Regional-focus/Border-seizure-measures-in-the-European-Union
[73] OECD (2019), *Counterfeiting and Piracy and the Swedish Economy: Making Sure "Made in Sweden" Always Is*, Illicit Trade, OECD Publishing, Paris, *https://doi.org/10.1787/eb300f5b-en*.
[74] Frontier Economics. (2016). *The Economic Impacts of Counterfeiting and Piracy*. Brussels, Cologne, Dublin, London, Madrid, Melbourne & Sydney: Frontier Economics. Retrieved from: https://www.inta.org/communications/documents/2017_frontier_report.pdf
[75] OLAF (13 May 2020). *Inquiry into fake COVID-19 products progresses. Available at: https://ec.europa.eu/anti-fraud/media-corner/news/13-05-2020/inquiry-fake-covid-19-products-progresses_en;* New York Times (10 February 2021). *Millions of Counterfeit N95 Masks Were Bought in 5 States, U.S. Says. Available at: https://www.nytimes.com/2021/02/10/us/n95-mask-fraud-investigation.html*; ABC7 (11 February 2021). *1.7 million counterfeit 3M N95 masks seized from Queens warehouse. Available at: https://abc7ny.com/counterfeit-mask-fake-bust-long-island-city-masks/10330388/;* Muso (2020). *Film & TV Piracy Surge During Covid-19 Lockdown. Available at: https://www.muso.com/magazine/film-tv-piracy-surge-during-covid-19-lockdown*
[76] Angelsen, A. et. al. (2014). Environmental Income and Rural Livelihoods: A Global-Comparative Analysis. *World Development, 64 (S1)*, S12-S28. Available at: https://www.sciencedirect.com/science/article/pii/S0305750X14000722
[77] Interpol (14 December 2020). *Forestry crime: targeting the most lucrative of environmental crimes.* Available at: https://www.interpol.int/News-and-Events/News/2020/Forestry-crime-targeting-the-most-lucrative-of-environmental-crimes
[78] Nellemann, C., Henriksen, R., Kreilhuber, A., Stewart, D., Kotsovou, M., Raxter, P., Mrema, E., and Barrat, S. (Eds). (2016). *The Rise of Environmental Crime – A Growing Threat to Natural Resources Peace, Development and Security. A UNEP-INTERPOL Rapid Response Assessment.* Nairobi: United Nations Environment Programme and RHIPTO Rapid Response–Norwegian Center for Global Analyses. Available at: http://pfbc-cbfp.org/news_en/items/unep-interpol-enen.html
[79] Nellemann, C., Henriksen, R., Kreilhuber, A., Stewart, D., Kotsovou, M., Raxter, P., Mrema, E., and Barrat, S. (Eds). (2016). *The Rise of Environmental Crime – A Growing Threat to Natural Resources Peace, Development and Security. A UNEP-INTERPOL Rapid Response Assessment.* Nairobi: United Nations Environment Programme and RHIPTO Rapid Response–Norwegian Center for Global Analyses. Available at: http://pfbc-cbfp.org/news_en/items/unep-interpol-enen.html
[80] Nellemann, C., Henriksen, R., Kreilhuber, A., Stewart, D., Kotsovou, M., Raxter, P., Mrema, E., and Barrat, S. (Eds). (2016). *The Rise of Environmental Crime – A Growing Threat to Natural Resources Peace, Development and Security. A UNEP-INTERPOL Rapid Response Assessment.* Nairobi: United Nations Environment Programme and RHIPTO Rapid Response–Norwegian Center for Global Analyses. Available at: http://pfbc-cbfp.org/news_en/items/unep-interpol-enen.html
[81] ILO. (2018). *Forestry, wood, pulp and paper sector*. Geneva: ILO. Available at: http://www.ilo.org/global/industries-and-sectors/forestry-wood-pulp-and-paper/lang--en/index.htm
[82] The World Bank. (2016). *Forests Generate Jobs and Incomes* [Brief]. Washington, DC: The World Bank. Available at: http://www.worldbank.org/en/topic/forests/brief/forests-generate-jobs-and-incomes
[83] The World Bank. (2016). *Forests Generate Jobs and Incomes* [Brief]. Washington, DC: The World Bank. Available at: http://www.worldbank.org/en/topic/forests/brief/forests-generate-jobs-and-incomes
[84] For example, the EU's Voluntary Partnership Agreements (VPAs) include minimum age and wage requirements, health and safety procedures, and freedom to organize and form unions. See also Stora Enso Supplier Code of Conduct, available at: http://assets.storaenso.com/se/com/DownloadCenterDocuments/SE%20_Supplier%20_CodeOfConduct.pdf
[85] UNEP. (2011). *Towards a green economy: pathways to sustainable development and poverty eradication.* Nairobi: United Nations Environment Programme. Retrieved from: https://sustainabledevelopment.un.org/content/documents/126GER_synthesis_en.pdf
[86] BBC (18 May 2020). *The hidden toll of lockdown on rainforests. Available at: https://www.bbc.com/future/article/20200518-why-lockdown-is-harming-the-amazon-rainforest;* WWW. (September 2020). *Understanding how corruption is accelerating illegal logging and deforestation during the COVID-19 pandemic. Available at: https://www.worldwildlife.org/pages/tnrc-blog-understanding-how-corruption-is-accelerating-illegal-logging-and-deforestation-during-the-covid-19-pandemic;* Mongabay (3 July 2020). *COVID-19 lockdown precipitates deforestation across Asia and South America. Available at: https://news.mongabay.com/2020/07/covid-19-lockdown-precipitates-deforestation-across-asia-and-south-america/;* Eco Business (25 May 2021). *Illegal loggers in Sulawesi use pandemic as cover to ramp up activity. Available a:* https://www.eco-business.com/news/illegal-loggers-in-sulawesi-use-pandemic-as-cover-to-ramp-up-activity/; Attah, Alhassan Nantogmah (2022). Second Assessment of the Impact of COVID-19 on Forests and Forest Sector in the African Region. Prepared for the 17th session of the United Nations Forum on Forests. Available at:https://www.un.org/esa/forests/wp-content/uploads/2022/05/2nd-assessment-Covid19-Africa-final.pdf
[87] FAO. (2012). Fisheries and aquaculture – enabling a vital sector to contribute more [Press release]. Rome: FAO. Available at: http://www.fao.org/news/story/en/item/150839/icode/
[88] FAO. (2018). *State of World Fisheries and Aquaculture, Committee on Fisheries, Thirty-third Session Rome, 9–13 July*. Rome: FAO. Retrieved from: http://www.fao.org/fileadmin/user_upload/COFI/COFI33Documents/MX204en.pdf

[89] FAO. (2012). *Fisheries and aquaculture – enabling a vital sector to contribute more* [Press release]. Rome: FAO. Available at: http://www.fao.org/news/story/en/item/150839/icode/
[90] FAO. (2018). *State of World Fisheries and Aquaculture, Committee on Fisheries, Thirty-third Session Rome, 9–13 July*. Rome: FAO. Retrieved from: http://www.fao.org/fileadmin/user_upload/COFI/COFI33Documents/MX204en.pdf
[91] FAO. (2018). State of World Fisheries and Aquaculture, Committee on Fisheries, Thirty-third Session Rome, 9–13 July. Rome: FAO. Retrieved from: http://www.fao.org/fileadmin/user_upload/COFI/COFI33Documents/MX204en.pdf
[92] WWF. (2018). Policy Brief: A Vision for Achieving Sustainable Fisheries in Regional Fisheries Management Organisations. Brussels: WWF European Policy Office. Retrieved from: http://awsassets.panda.org/downloads/achieving_sustainable_fisheries_in_rfmos.pdf
[93] WWF. (2018). Policy Brief: A Vision for Achieving Sustainable Fisheries in Regional Fisheries Management Organisations. Brussels: WWF European Policy Office. Retrieved from: http://awsassets.panda.org/downloads/achieving_sustainable_fisheries_in_rfmos.pdf
[94] UNCTAD / FAO / UNEP. (2018). Achieving the targets of Sustainable Development Goal 14: Sustainable fish and seafood value chains and trade. Background Note for the Second Oceans Forum 16–17 July, 2018 Geneva, Switzerland. Retrieved from: http://unctad.org/meetings/en/SessionalDocuments/Background-Note-Second-Oceans-Forum-July2018-v4.pdf
[95] Sumaila, U. R., Zeller, D., Hood, L., Palomares, M. L. D., Li, Y., & Pauly, D. (2020). Illicit trade in marine fish catch and its effects on ecosystems and people worldwide. Science Advances, 6(9), [eaaz3801]. https://doi.org/10.1126/sciadv.aaz3801 / also https://research-repository.uwa.edu.au/en/publications/illicit-trade-in-marine-fish-catch-and-its-effects-on-ecosystems-
[96] United Nations. (2015). 69/109. Sustainable fisheries, including through the 1995 Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, and related instruments. Resolution adopted by the General Assembly on 9 December 2014. A/RES/69/109. New York: United Nations. Retrieved from: http://undocs.org/A/RES/69/109
[97] Agnew, D. J., Pearce, J., Pramod, G., Peatman, T., Watson, R., et al. (2009). Estimating the Worldwide Extent of Illegal Fishing. *PLoS One, 4 (2)*, 1-8.
[98] Copeland, D. (2014). West Africa has vast marine wealth but it is being depleted by the world's highest levels of illegal fishing. *The World Today, 70 (1).* Available at: https://www.chathamhouse.org/publications/twt/archive/view/197223
[99] Gianni, M. and Simpson, W. (2005). *The Changing Nature of High Seas Fishing: How Flags of Convenient Provide Cover for Illegal, Unreported and Unregulated Fishing*. Canberra, London, Gland: Australian Department of Agriculture, Fisheries and Forestry, International Transport Workers' Federation and WWF International. Retrieved from: http://assets.wwf.org.uk/downloads/flagsofconvenience.pdf
[100] ILO. (2013). *Caught at Sea: Forced Labour and Trafficking in Fisheries*. Geneva: ILO. Retrieved from: https://www.ilo.org/wcmsp5/groups/public/---ed_norm/---declaration/documents/publication/wcms_214472.pdf
[101] OECD (4 June 2020). *Fisheries, aquaculture and COVID-19: Issues and policy responses.* Available at: http://www.oecd.org/coronavirus/policy-responses/fisheries-aquaculture-and-covid-19-issues-and-policy-responses-a2aa15de/; Pew Charitable Trusts (5 June 2020). *Response to COVID-19 Reinforces Lessons for the Fight Against Illegal Fishing.* Available at: https://www.pewtrusts.org/en/research-and-analysis/articles/2020/06/05/response-to-covid-19-reinforces-lessons-for-the-fight-against-illegal-fishing; UN News (2 February 2021). *Pandemic triggers 'widespread upheaval' in global fisheries and aquaculture.* Available at: https://news.un.org/en/story/2021/02/1083592
Cordon, Sandra (11 May 2021). *Oceans "not yet beyond repair," but getting closer*. Landscape News. Available at: https://news.globallandscapesforum.org/52281/second-world-ocean-assessment-on-critical-state-of-oceans/
[102] Statista. (2018). *Global Oil Industry and Market – Statistics & Facts.* n.p.: Statista. Available at: https://www.statista.com/topics/1783/global-oil-industry-and-market/
[103] Gronholt-Pedersen, J. (2015, 25 October). As oil industry bleeds jobs, Asia's green energy drive offers bright spot. *Reuters.* Available at: https://www.reuters.com/article/us-energy-employment/as-oil-industry-bleeds-jobs-asias-green-energy-drive-offers-bright-spot-idUSKCN0SJ0WY20151025
[104] export.gov. (2018). *Mexico - N. Oil and Gas*. Washington, DC: The International Trade Administration, U.S. Department of Commerce. Available at: https://www.export.gov/article?id=Mexico-Upstream-Oil-and-Gas
[105] Energia16. (n.d.). Pemex to continue staff cuts in 2017. *Energia16.* Available at: https://www.energia16.com/pemex-to-continue-staff-cuts-in-2017/?lang=en
[106] OPEC. (2018). *Venezuela facts and figures*. n.p.: OPEC. Accesses 18 October 2018. Available at: http://www.opec.org/opec_web/en/about_us/171.htm, The World Bank. (2018). *The World Bank in Venezuela*. Washington DC: The World Bank. Available at: http://www.worldbank.org/en/country/venezuela/overview
[107] Forbes. (2018). *Saudia Arabia*. n.p.: Forbes. Accessed on 18 October 2018. Available at: https://www.forbes.com/places/saudi-arabia/
[108] Norwegian Petroleum. (2018). *Employment in the Petroleum Industry*. Oslo: Norwegian Ministry of Petroleum and Energy. Available at: http://www.norskpetroleum.no/en/economy/employment/
[109] UNDP. (n.d.). *Taxes on Fuel.* n.p.: UNDP. Available at: http://www.undp.org/content/sdfinance/en/home/solutions/fuel-tax.html
[110] Desjardins, J. (2017, May 7). Fuel theft is a big problem. *Business Insider*. Available at: https://www.businessinsider.com/fuel-theft-is-a-big-problem-2017-5
[111] Scott, A. (2016). How Chemistry is Helping Defeat Fuel Fraud, *Chemical & Engineering News, 94(5)*. 20 – 21.

[112] Romsom, Etienne (February 2022). Global oil theft: impact and policy responses. UNU- WIDER Working Paper 2022/16. Available at: https://www.wider.unu.edu/sites/default/files/Publications/Working-paper/PDF/wp2022-16-global-oil-theft-impact-policy-responses.pdf
[113]African Development Bank. (2016). Illicit trade in natural resources in Africa — A forthcoming report from the African Natural Resources Center. Abidhan: African Development Bank. Retrieved from: https://www.afdb.org/fileadmin/uploads/afdb/Documents/Events/IFF/Documents_IFF/ANRC_ILLICIT_TRADE_IN_NATURAL_RESOURCES.pdf
[114] Al Makhifi, J. (2013). 'Algeria Smuggling Crackdown Cuts Fuel Line to Morocco'. *Arab News*, 28 September. Available at: https://www.arabnews.com/news/466102.
[115] Martínez, R. (2016, 17 October). Mexico loses millions of dollars daily to fuel theft. *GlobalPost.* Available at: https://www.pri.org/stories/2016-10-17/mexico-loses-millions-dollars-daily-fuel-theft
[116] Martínez, R. (2016, 17 October). Mexico loses millions of dollars daily to fuel theft. *GlobalPost.* Available at: https://www.pri.org/stories/2016-10-17/mexico-loses-millions-dollars-daily-fuel-theft
[117] Stargardter, G. (2018, January 24). Mexico'sdrug cartels, now hooked on fuel, cripple the country's refineries. *Reuters Investigates.* Available at: https://www.reuters.com/investigates/special-report/mexico-violence-oil/
[118] Reuters. (2016, April 1). UPDATE 1 - Mexico Plans Fresh Budget Cuts in 2017 as Oil Slump Bites. *Reuters.* Available at: http://www.reuters.com/article/mexico-budget-idUSL2N17502A
[119] Gloystein, H. & Geddie, J. (2018, 17 January). Shady triangle: Southeast Asia's illegal fuel market. *Reuters.* Retrieved from: https://www.reuters.com/article/us-singapore-oil-theft-southeast-asia-an/shady-triangle-southeast-asias-illegal-fuel-market-idUSKBN1F70TT
[120] Katsouris, C. and Sayne, A. (2013). *Nigeria's Criminal Crude: International Options to Combat the Export of Stolen Oil*. London: Chatham House. Retrieved from: https://www.chathamhouse.org/sites/files/chathamhouse/public/Research/Africa/0913pr_nigeriaoil.pdf
[121] Ralby, I. M. (2017). *Downstream Oil Theft: Global Modalities, Trends, and Remedies*. Washington, DC: Atlantic Council Global Energy Center. Retrieved from: http://www.eurocontrol.ca/images/euo_content_images/euo_pdfs_in_articles/AtlanticCouncil_Report-Downstream_Oil_Theft_January_2017.pdf
[122] Eboh, Camillus (2 July 2022). Nigeria lost $1 billion in Q1 revenue to crude oil theft. Reuters. Available at: https://www.reuters.com/world/africa/nigeria-lost-1-billion-q1-revenue-crude-oil-theft-2022-07-02/
[123] https://www.wider.unu.edu/sites/default/files/Publications/Working-paper/PDF/wp2022-16-global-oil-theft-impact-policy-responses.pdf
[124] British-Irish Parliamentary Assembly. (2015). *Report from Committee A (Soveriegn Matters) on Cross-border Police Cooperation and Illicit Trade*. n.p.: British-Irish Parliamentary Assembly. Retrieved from: http://www.britishirish.org/assets/NewFolder-2/235.-BIPA-report-from-Committee-A-Sovereign-Matters-on-Cross-border-Police-Cooperation-and-Illicit-Trade-2015.pdf
[125] Ralby, I.M., R. Ralby, and D. Soud (2017). *Downstream Oil Theft: Global Modalities, Trends, and Remedies*. Washington, DC: Atlantic Council Global Energy Center. Available at: https://www.atlanticcouncil.org/wp-content/uploads/2017/01/Downstream_Oil_Theft_web_0327.pdf
[126] Khazov-Cassia, S. (2021) 'The Great Russian Oil Heist: Criminals, Lawmen, and the Quest for Liquid Loot'. Radio Free Europe/Radio Liberty (RFE/RL), 22 March. Available at: https://www.rferl.org/a/russia-oil-pipeline-theft-transneft/31163179.html (accessed September 2021).
[127] Chen, A. (2015). 'China Detains Gangs Accused of Smuggling 440,000 Tonnes of Oil'. *Reuters*, 20 April. Available at: https://www.reuters.com/article/china-oil-smuggling/china-detains-gangs-accused-of-smuggling-440000-tonnes-of-oil-idUSL4N0XH38320150420
[128] Slattery, G. (2021). 'Special Report: In Brazil, Organized Crime Siphons Billions from Gas Stations'. *Reuters*, 12 March. Available at: https://www.reuters.com/article/us-brazil-fuel-crime-special-report-idUSKBN2B418U
[129] ADB. (2015). Fuel-Marking Programs: Helping Governments Raise Revenue, Combat Smuggling, and Improve the Environment. *The Governance Briefs, 24*. Retrieved from: https://www.adb.org/sites/default/files/publication/174773/governance-brief-24-fuel-marking-programs.pdf
[130] Rozhnov, K. & Strzelecki, M. (2013, August 27). Fuel Fraud Costing Europe More Than $4 Billion in Lost Taxes. *Bloomberg*. Available at: https://www.bloomberg.com/news/articles/2013-08-26/fuel-smugglers-costing-europe-more-than-4-billion-in-lost-taxes
[131] At the time, trade taxes provided 50% of the Government of Benin's revenues and Benin's Port of Cotonou provided 80% of the country's taxes on trade.
[132] UNODC (2013). *Transnational Organized Crime in West Africa: A Threat Assessment*. Vienna: United Nations Office on Drugs and Crime. Available at: https://www.unodc.org/documents/data-and-analysis/tocta/West_Africa_TOCTA_2013_EN.pdf
[133] https://www.wider.unu.edu/sites/default/files/Publications/Working-paper/PDF/wp2022-16-global-oil-theft-impact-policy-responses.pdf
[134] Romsom, Etienne (2022) : Countering global oil theft: Responses and solutions, WIDER Working Paper, No. 2022/35, ISBN 978-92-9267-166-2, The United Nations University World Institute for Development Economics Research (UNU-WIDER), Helsinki, https://doi.org/10.35188/UNU-WIDER/2022/166-2
[135] Insightcrime (1 October 2020). *Why Oil Theft Spread Across Latin America During Pandemic. Available at. https://insightcrime.org/news/analysis/oil-theft-latin-america-pandemic/; Blackpeak (20 May 2020). Oil Crash Threatens Security: Nigeria's Risks Exacerbated by COVID-19 Pandemic*. Available at: https://www.blackpeakgroup.com/2020/05/oil-crash-threatens-security-nigerias-risks-exacerbated-by-covid-19-pandemic/

[136] Romsom, Etienne (2022) : Countering global oil theft: Responses and solutions, WIDER Working Paper, No. 2022/35, ISBN 978-92-9267-166-2, The United Nations University World Institute for Development Economics Research (UNU-WIDER), Helsinki, https://doi.org/10.35188/UNU-WIDER/2022/166-2

[137] IMPACT. (2006). *Counterfeit Medicines: An update on estimates 15 November 2016*. n.p.: WHO. Retrieved from: http://www.who.int/medicines/services/counterfeit/impact/TheNewEstimatesCounterfeit.pdf; See also WHO. (2017). *1 in 10 medical products in developing countries is substandard or falsified*..n.p.: WHO. Available at: https://www.who.int/news-room/detail/28-11-2017-1-in-10-medical-products-in-developing-countries-is-substandard-or-falsified

[138] OECD/EUIPO (2020), *Trade in Counterfeit Pharmaceutical Products, Illicit Trade*, OECD Publishing, Paris, https://doi.org/10.1787/a7c7e054-en.

[139] INTERPOL. (n.d.). *Pharmaceutical crime: A major threat to public health*. Lyon: INTERPOL. Available at: https://www.interpol.int/Crime-areas/Pharmaceutical-crime/Pharmaceutical-crime

[140] O'Hagan A, Garlington A. "Counterfeit drugs and the online pharmaceutical trade, a threat to public safety" Forensic Res Criminol Int J. 2018;6(3):151-158 DOI: 10.15406/frcij.2018.06.00200.

[141] Gurney B, Amundson G, Boumediene SL "Ways to Battle the $431 Billion Fake Pharmaceutical Industry" Review of Business & Finance Studies 2017 Vol. 8, No. 1, 2017, pp. 33-40.

[142] IMPACT. (2006). *Counterfeit Medicines: An update on estimates 15 November 2016*. n.p.: WHO. Retrieved from: http://www.who.int/medicines/services/counterfeit/impact/TheNewEstimatesCounterfeit.pdf

[143] EUIPO. (2016). *The economic cost of IPR infringement in the pharmaceutical industry: Quantification of infringement in Manufacture of pharmaceutical preparations (NACE 21.20)*. Alicante: EUIPO. Retrieved from: https://euipo.europa.eu/tunnel-web/secure/webdav/guest/document_library/observatory/resources/research-and-studies/ip_infringement/study9/pharmaceutical_sector_en.pdf

[144] Miller HI, Winegarden W. Fraud in your pill bottle: The unacceptable cost of counterfeit medicines. Center for Medical Economics and Innovation Issue Brief. Pacific Research Institute; 2020. Available: https://medecon.org/wp-content/uploads/2020/10/CounterfeitMed_F.pdf.

[145] Cameron, A. et al. (2009). Medicine prices, availability and affordability in 36 developing and middle-income countries: a secondary analysis. *The Lancet, 373 (9659),* 240-249. Available at: http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(08)61762-6/fulltext

[146] INTERPOL (2 December 2020) *INTERPOL warns of organized crime threat to COVID-19 vaccines.* Available at: https://www.interpol.int/en/News-and-Events/News/2020/INTERPOL-warns-of-organized-crime-threat-to-COVID-19-vaccines; Interpol (19 March 2020). *Global operation sees a rise in fake medical products related to COVID-19. Available at: https://www.interpol.int/en/News-and-Events/News/2020/Global-operation-sees-a-rise-in-fake-medical-products-related-to-COVID-19; OECD (2020). Coronavirus (COVID-19) and the global trade in fake pharmaceuticals*. Available at: https://www.oecd.org/gov/illicit-trade/coronavirus-covid-19-and-the-global-trade-in-fake-pharmaceuticals.htm and https://www.oecd.org/gov/illicit-trade/oecd-fake-medicines-webinar-june-10-summary-note.pdf

[147] Betti, S. (2021, 12 February). *COVID-19 vaccine race: the black market opportunity*. International Institute for Strategic Studies. Available at: https://www.iiss.org/blogs/analysis/2021/02/covid-19-vaccines-black-market

[148] Mathias, E., & Feys, B. (2016). *Implementing AML/CFT Measures in the Precious Minerals Sector: Preventing Crime While Increasing Revenue*. Washington, DC: IMF. Retrieved from: https://www.imf.org/external/pubs/ft/tnm/2014/tnm1401a.pdf; see also Perez, R (2017). *Artisanal and Small-Scale Mining and Sustainable Development Goals*. Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development. Retrieved from: https://www.igfmining.org/wp-content/uploads/2018/09/Session-19-ASM-and-SDGs-by-Romain-Perez.pdf

[149] Bishop, P. H. (2011). *Illicit trafficking of precious metals and its destabilizing factors in systems of affected countries*. *Freedom from Fear Magazine,* 9. Available at: http://f3magazine.unicri.it/?p=598

[150] International Council on Mining and Metals. (2016). *Role of Mining in National Economies, third edition*. London: ICMM. Retrieved from: https://www.icmm.com/website/publications/pdfs/social-and-economic-development/161026_icmm_romine_3rd-edition.pdf

[151] International Council on Mining and Metals. (2016). *Role of Mining in National Economies, third edition*. London: ICMM. Retrieved from: https://www.icmm.com/website/publications/pdfs/social-and-economic-development/161026_icmm_romine_3rd-edition.pdf

[152] World Gold Council, "Responsible Mining" available at: http://www.gold.org/goldmining/; Global Witness, "Conflict Diamonds" available at https://www.globalwitness.org/en-gb/campaigns/conflict-diamonds/#more responsible-mining/social.

[153] Financial Action Task Force, "Money laundering and terrorist financing through trade in diamonds" (2013) available at http://www.fatf-gafi.org/media/fatf/documents/reports/ML-TF-through-trade-in-diamonds.pdf

[154] See also Global Policy Forum, "Minerals in Conflict" available at https://www.globalpolicy.org/the-dark-side-of-natural-resources-st/minerals-in-conflict.html; Global Witness, "Conflict Diamonds" available at https://www.globalwitness.org/en-gb/campaigns/conflict-diamonds/#more

[155] UNICRI, "Strengthening the Security and Integrity of the Precious Metals Supply Chain – Technical Report" (2016). Available at: https://issuu.com/unicri/docs/precious_metals_report

[156] Nellemann, C., Henriksen, R., Kreilhuber, A., Stewart, D., Kotsovou, M., Raxter, P., Mrema, E., and Barrat, S. (Eds). (2016). *The Rise of Environmental Crime – A Growing Threat to Natural Resources Peace, Development and Security. A UNEP-INTERPOL Rapid Response Assessment.* Nairobi: United Nations Environment Programme and RHIPTO Rapid Response–Norwegian Center for Global Analyses. Available at: http://pfbc-cbfp.org/news_en/items/unep-interpol-enen.html

[157] Promoting an international strategy to combat illicit trafficking in precious metals, UNICRI, October 2015 Available at: http://www.unicri.it/special_topics/metals_gemstones/Preliminary_Desk_Review.pdf

[158] Mathias, E., & Feys, B. (2016). *Implementing AML/CFT Measures in the Precious Minerals Sector: Preventing Crime While Increasing Revenue.* Washington, DC: IMF. https://www.imf.org/external/pubs/ft/tnm/2014/tnm1401a.pdf
[159] Global Initiative Against Transnational Organised Crime. (2015). *Organized Crime: A Cross-Cutting Threat to Sustainable Development.* Geneva: Global Initiative against Transnational Organized Crime. http://globalinitiative.net/wp- content/uploads/2015/01/global-initiative-organized-crime-as-a-cross-cutting-threat-to-development-january-2015.pdf
[160] Interpol (28 April 2022). *The devastating impact of illegal gold mining in Latin America.* Available at: https://www.interpol.int/en/News-and-Events/News/2022/The-devastating-impact-of-illegal-gold-mining-in-Latin-America
[161] Crowley, K. (2015, January 27). Gangs live underground for months to feed illegal gold trade. *Fin24*. Available at: https://www.fin24.com/Companies/Mining/Gangs-live-underground-for-months-to-feed-illegal-gold-trade-20150126
[162] Crowley, K. (2015, January 27). Gangs live underground for months to feed illegal gold trade. *Fin24*. Available at: https://www.fin24.com/Companies/Mining/Gangs-live-underground-for-months-to-feed-illegal-gold-trade-20150126
[163] Hosken, G., Jamal, S., Bornman, J., & Cowan, K. (2017, March 27). The truth about South Africa's illegal mining industry. *Rand Daily Mail.* Available at: https://www.businesslive.co.za/rdm/business/2017-03-27-the-truth-about-south-africas-illegal-mining-industry/
[164] Long, K. (2015, October 23). Myanmar's $40 billion jade trade labeled "biggest natural resource heist" in modern history. *ABC*. Available at: http://www.abc.net.au/news/2015-10-23/myanmar-jade-trade-biggest-heist-in-modern-history/6880144
[165] Pye, D. (2016, September 26). The dark shadow of Myanmar's jade trade. *Financial Times.* Available at: https://www.ft.com/content/cf46e086-6909-11e6-a0b1-d87a9fea034f
[166] Saif, Shadi Khan (25 August 2020). iAA. Available at:https://www.aa.com.tr/en/asia-pacific/illegal-mining-costs-afghanistan-millions-annually-un/1952838
[167] Karmakar, Debashish. (18 July 2021). Illegal sand mining costs Bihar Rs 700 crore a year: Minister. The Times of India. Available at: http://timesofindia.indiatimes.com/articleshow/84509186.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst
[168] IISD. (21 April 2020). *UNEP Exposes Fight Against Illegal Trade in Pesticides, Mercury.* Available at: https://sdg.iisd.org/news/unep-exposes-fight-against-illegal-trade-in-pesticides-mercury/
[169] Independent (12 October 2020). *Coronavirus pandemic spurs illegal gold rush in Zimbabwe mountains. Available at: https://www.independent.co.uk/news/world/africa/coronavirus-zimbabwe-pandemic-illegal-gold-rush-mining-b983584.html;* World Resources Institute (8 September 2020). *COVID-19, Rising Gold Prices and Illegal Mining Threaten Indigenous Lands in the Amazon.* Available at: https://www.wri.org/blog/2020/09/covid-19-rising-gold-prices-and-illegal-mining-threaten-indigenous-lands-amazon; AFP (24 September 2020). *Indonesians turn to illegal gold mining as coronavirus pandemic hits economy https://www.scmp.com/news/asia/southeast-asia/article/3102772/indonesians-turn-illegal-gold-mining-coronavirus-pandemic; USAID (2020). The Impact of COVID-19 on Artisanal Gold Miners in Eastern DRC. Available at: https://www.globalcommunities.org/publications/Impact%20of%20Covid-19%20on%20Artisinal%20Gold%20Miners%20in%20Eastern%20DRC.pdf*
[170] Melzer, S. and Martin, C. (2016). "A brief overview of illicit trade in tobacco products. In OECD, *Illicit Trade: Converging Criminal Networks (123-178).* Paris: OECD Publishing. Available at: http://dx.doi.org/10.1787/9789264251847-8-en
[171] WHO. (2018). *Tobacco*. Geneva: WHO. Available at: http://www.who.int/news-room/fact-sheets/detail/tobacco
[172] WHO Regional Office for the Eastern Mediterranean. (2018). *Non communicable diseases – Illicit trade increases tobacco use.* Cairo: WHO Regional Office for the Eastern Mediterranean. Available at: http://www.emro.who.int/noncommunicable-diseases/highlights/illicit-trade-increases-tobacco-use.html
[173] Illicit cigarettes are essentially defined as cigarettes that evade either or both import duties and / or domestic taxes (includes both smuggled, counterfeit/fake products and products manufactured and sold locally without paying the relevant duties & taxes).
[174] The Financial Action Task Force (FATF). (2012). *FATF Report: Illicit Tobacco Trade, June 2012.* Paris: FATF/OECD. Retrieved from: http://www.fatf-gafi.org/media/fatf/documents/reports/Illicit%20Tobacco%20Trade.pdf
[175] NIH National Cancer Institute and the World Health Organization. (2016). *Monograph 21: The Economics of Tobacco and Tobacco Control, Section 5 Policy and Other Influences on the Supply of Tobacco Products, Chapter 14 Tobacco Tax Avoidance and Tax Evasion.* n.p.: U.S. Department of Health & Human Services. Retrieved from: https://cancercontrol.cancer.gov/brp/tcrb/monographs/21/docs/m21_14.pdf
[176] Kabir FHMH, Shukla DS, Iqbal N, Peiris M. (2010). *Tracing illicit tobacco trade in South Asia. Focus countries: Bangladesh, India, Pakistan, and Sri Lanka.* Ottawa: HealthBridge. Retrieved from: https://healthbridge.ca/images/uploads/library/IllicitTobaccoTradeinSouthAsia.pdf
; Karki, Y.B., Pant, K.D., & Pande, B.R. (2003). *A study on the Economics of Tobacco in Nepal. HNP discussion papers: Economics of tobacco control paper no. 13.* Washington, DC: World Bank and World Health Organization. Retrieved from: http://siteresources.worldbank.org/HEALTHNUTRITIONANDPOPULATION/Resources/281627-1095698140167/Karki-AStudy_whole.pdf
[177] Her Majesty's Revenue and Customs. (2011*). Tackling tobacco smuggling—building on our success: a renewed strategy for HM Revenue and Customs and the UK Border Agency*. London: HM Revenue and Customs. Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/398461/Tackling_tobacco_smuggling_-_building_on_our_success.pdf
[178] The World Bank. (2016). *Advancing public health and financing goals under the Universal Health Coverage (UHC) Agenda: A Proposed Tobacco Tax and Illicit Trade Joint Learning Network (JLN) Module: Concept Note.* Washington, DC: The World Bank. Retrieved from: http://pubdocs.worldbank.org/en/797851469022590179/Concept-Note-tobacco-tax-and-illicit-trade-JLN-module-july-2016.pdf

[179] The World Bank. (2016). *Advancing public health and financing goals under the Universal Health Coverage (UHC) Agenda: A Proposed Tobacco Tax and Illicit Trade Joint Learning Network (JLN) Module: Concept Note.* Washington, DC: The World Bank. Retrieved from: http://pubdocs.worldbank.org/en/797851469022590179/Concept-Note-tobacco-tax-and-illicit-trade-JLN-module-july-2016.pdf
[180] WHO FCTC. (2015). *Illegal Trade of Tobacco Products: What you should know to stop it*. Geneva: WHO. Retrieved from:
http://apps.who.int/iris/bitstream/handle/10665/170994/WHO_NMH_PND_15.3_eng.pdf;jsessionid=8BCA1F557FFF0BFB68905F48ACA67B5A?sequence=1
[181] Joossens L, Merriman D, Ross H, Raw M. The impact of eliminating the global illicit cigarette trade on health and revenue. *Addiction.* 2010;105(9):1640–1649. doi: 10.1111/j.1360-0443.2010.03018.x.
[182] Patrick Petit and Janos Nagy. How to design and enforce tobacco excises? International Monetary Fund 2016. https://thedocs.worldbank.org/en/doc/378541548434902010-0090022019/original/WBGTobaccoIllicitTradeIntroduction.pdf
[183] The United States Department of State / Department of Justice / Department of the Treasury / Department of Homeland Security / Department of Health and Human Services. (2015). *The Global Illicit Trade in Tobacco: A Threat to National Security*. n.p.: A/GIS/GPS. Retrieved from: https://2009-2017.state.gov/documents/organization/250513.pdf
[184] Joossens L, Merriman D, Ross H, Raw M. The impact of eliminating the global illicit cigarette trade on health and revenue. *Addiction.* 2010;105(9):1640–1649. doi: 10.1111/j.1360-0443.2010.03018.x.
[185] WCO (2022). Illicit Trade Report 2021. World Customs Organization. Available at: http://www.wcoomd.org/-/media/wco/public/global/pdf/topics/enforcement-and-compliance/activities-and-programmes/illicit-trade-report/itr_2021_en.pdf?db=web
[186] EUBAM (20 November 2020). *Task Force Tobacco discusses the fight against illicit tobacco trade under the COVID-19.* Available at: http://eubam.org/newsroom/task-force-tobacco-discusses-the-fight-against-illicit-tobacco-trade-under-the-covid-19/; JTI (2020). *The Gathering Storm.* Available at: https://www.jti.com/sites/default/files/global-files/documents/download-pdf/the-gathering-storm.pdf; Van Walbeek C, Filby S, van der Zee K. (May 2020). *Lighting Up the Illicit Market Report: Smoker's Responses to the Cigarette Sales Ban In South Africa.* Available at: http://www.reep.uct.ac.za/sites/default/files/image_tool/images/405/Publications/reports/Lockdown%20Survey%20Final.pdf; EIU (2020). *LASTING EFFECTS How the covid-19 pandemic will change illicit trade*. Available at: https://deliverchange.economist.com/article/lasting-effects/?utm_source=PaidSocial&utm_medium=EIUTwitter&utm_campaign=PMIIllicitTradeCovid&dclid=CjkKEQjwlbr8BRD8kejczMnS3uoBEiQAYFFuk5jDjt0ewCkQ8B4ZOAYif_jkfX0-HC0Kfp5TD4LJMHzw_wcB
[187] Ross H, Joossens L. Tackling illicit tobacco during COVID-19 pandemic. Tob Induc Dis. 2021 Jun 10;19:10. doi: 10.18332/tid/137086. PMID: 34163313; PMCID: PMC8191567.
[188] PMI. (11 January 2021). *Israel's COVID-19 measures have a promising impact on illicit cigarette trade*. Stop Illegal. Available at: https://www.pmi.com/illicit-trade-prevention/blog/israel-s-covid-19-measures-have-a-promising-impact-on-illicit-cigarette-trade
[189] Alliance 87. (2017). *Global Estimates of Modern Slavery: Forced Labour and Forced Marriage*. Geneva: ILO / Walk Free Foundation.
[190] ILO. (2014). *Profits and Poverty: The Economics of Forced Labour*. Geneva: International Labour Organization. Available at: http://www.ilo.org/global/publications/ilo-bookstore/order-online/books/WCMS_243391/lang--en/index.htm
[191] Almeida, André & Montes, Gabriel. (2020). Effects of crime and violence on business confidence: evidence from Rio de Janeiro. Journal of Economic Studies. ahead-of-print. 10.1108/JES-07-2019-0300. /
[192] US Department of State. *2021 Trafficking in Persons Report*. Available at: https://humantraffickingsearch.org/resource/trafficking-in-persons-report/
[193] UNODC (3 February 2021). *Amid COVID-19 Pandemic, Trafficking in Persons is 'Closer to Everyone's Life'* Available at: https://www.unodc.org/unodc/en/frontpage/2021/February/amid-covid-19-pandemic--trafficking-in-persons-is-closer-to-everyones-life.html
[194] This estimate is somewhat confounded with forestry data, see Nellemann, C., Henriksen, R., Kreilhuber, A., Stewart, D., Kotsovou, M., Raxter, P., Mrema, E., and Barrat, S. (Eds). (2016). The Rise of Environmental Crime – A Growing Threat to Natural Resources Peace, Development and Security. A UNEP- INTERPOL Rapid Response Assessment. Nairobi: United Nations Environment Programme and RHIPTO Rapid Response–Norwegian Center for Global Analyses. Available at: http://pfbc-cbfp.org/news_en/items/unep-interpol-enen.html
[195] UN General Assembly. (2015). *Tackling illicit trafficking in wildlife.* A/RES/69/314. Retrieved from: https://cites.org/sites/default/files/eng/news/pr/2015/UNGA_res_illicit_trade_wildlife.pdf
[196] UNEP. (2014). *The Environmental Crime Crisis: Threats To Sustainable Development From Illegal Exploitation And Trade In Wildlife And Forest Resources*. Nairobi/Arendal: United Nations Environment Programme and GRID-Arendal. Retrieved from: http://wedocs.unep.org/bitstream/handle/20.500.11822/9120/-The%20environmental%20crime%20crisis%3a%20threats%20to%20sustainable%20development%20from%20illegal%20exploitation%20and%20trade%20in%20wildlife%20and%20forest%20resources-2014RRAcrimecrisis.pdf?sequence=3&isAllowed=y
[197] UNEP. (2014). *The Environmental Crime Crisis: Threats To Sustainable Development From Illegal Exploitation And Trade In Wildlife And Forest Resources*. Nairobi/Arendal: United Nations Environment Programme and GRID-Arendal. Retrieved from: http://wedocs.unep.org/bitstream/handle/20.500.11822/9120/-The%20environmental%20crime%20crisis%3a%20threats%20to%20sustainable%20development%20from%20illegal%20explo

itation%20and%20trade%20in%20wildlife%20and%20forest%20resources-2014RRAcrimecrisis.pdf?sequence=3&isAllowed=y

198 UNWTO. (2015). *Towards Measuring Economic Value of Wildlife Watching Tourism in Africa*. Madrid: World Tourism Organization. Retrieved from: https://sustainabledevelopment.un.org/content/documents/1882unwtowildlifepaper.pdf

199 IPBES (2022): Summary for policymakers of the thematic assessment of the sustainable use of wild species of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. J.-M. Fromentin, M.R. Emery, J. Donaldson, M.-C. Danner, A. Hallosserie, D. Kieling, G. Balachander, E.S. Barron, R.P. Chaudhary, M. Gasalla, M. Halmy, C. Hicks, M.S. Park, B. Parlee, J. Rice, T. Ticktin, and D. Tittensor (eds.). IPBES secretariat, Bonn, Germany. 33 pages. https://doi.org/10.5281/zenodo.6425599

200 David Sheldrick Wildlife Trust. (2013). *Dead or alive? Valuing an elephant*. Surrey: David Sheldrick Wildlife Trust. Retrieved from: http://iworry.org/wp-content/uploads/2013/09/Dead-or-Alive-Final-LR.pdf

201 WWF / Dalberg. (December 2012). *Fighting illicit wildlife trafficking: A consultation with governments.* Gland: WWF International. Available at: https://www.worldwildlife.org/publications/fighting-illicit-wildlife-trafficking-a-consultation-with-governments

202 Scanlon, J. E. (2016). *CITES – galvanizing a global collective effort to save wildlife* [Keynote Address - Plenary Opening Session]. Save Wildlife: Act Now or Game Over Wildlife Conference, The Hague, 1-3 March 2016. Available at: https://www.tralac.org/images/docs/9193/cites-galvanizing-a-global-collective-effort-to-save-wildlife-keynote-address-by-john-e-scanlon-save-wildlife-conference-march-2016.pdf

203 https://rusi.org/explore-our-research/publications/occasional-papers/follow-money-using-financial-investigation-combat-wildlife-crime

204 https://globalinitiative.net/analysis/illegal-wildlife-trade-ocindex/

205 IPBES (2022): Summary for policymakers of the thematic assessment of the sustainable use of wild species of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. J.-M. Fromentin, M.R. Emery, J. Donaldson, M.-C. Danner, A. Hallosserie, D. Kieling, G. Balachander, E.S. Barron, R.P. Chaudhary, M. Gasalla, M. Halmy, C. Hicks, M.S. Park, B. Parlee, J. Rice, T. Ticktin, and D. Tittensor (eds.). IPBES secretariat, Bonn, Germany. 33 pages. https://doi.org/10.5281/zenodo.6425599