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Global Resource Geopolitics: Natural Resources, Conflict and Development

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Introduction

Conflict over natural resources, from Russian oil to Congolese Cobalt to Chinese rare earth elements, is reshaping international relations around the world. As global demand for energy, consumer goods, and high-tech increases, geopolitical conflicts over the scarce resources needed to meet these demands seem to intensify. Technological development continues to change the demand for resources, the nature of conflicts, and the way resources are valued, extracted, exchanged, and controlled across the globe. Diverse actors and institutions are experimenting with measures to govern the immense, essential, and deeply problematic enterprises that wrest raw materials from the earth and transform them into the essential hardware of everyday modern life. In a time of climate and political crises, it is especially important to understand how global resource geopolitics shapes our lives in ways big and small.

This publication reproduces papers written by students enrolled in the Arava Institute's *Global Resource Geopolitics: Natural Resources, Conflict and Development* course. The papers explore a range of natural resource extraction case studies in order to understand the relationship between conflict, natural resources, and the effects of this relationship on development, peace, and security. These cases are torn right out of today's headlines and are deeply relevant to the global struggle to address the climate crisis while protecting human rights, social justice and local environments. It is with great pleasure and pride that we present these papers to the reader.

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Potash Extraction in the Dead Sea Region

Abi Gruvman

Geographical Context

The Dead Sea is a unique and important natural salt lake located in the Jordan Rift Valley in southwestern Asia. The western shoreline of this landlocked body of water lies within Israel and the West Bank, and the lake shares an eastern border with Jordan. The Dead Sea is both the lowermost body of surface water and the lowest elevation point on Earth, with its water level measured at approximately 430 meters below sea level, a number which continues to drop at a rate of 1 meter per year, largely due to the diversion of flow from the Jordan River, which is the primary source of water for the Dead Sea (Pletcher, 2022). This ecological marvel is incredibly rich in natural resources; an enormous array of minerals, salts, and other desirable elements can be found in and extracted from the Dead Sea. The exploitation of these resources is highly profitable, bringing in streams of revenue from the sale of these elemental supplies, the operation of related industries, and the export of such valuable materials.



Dead Sea. Image. Encyclopedia Britannica.

The continual decline in the surface level of the lake has dramatically changed the physical character of the Dead Sea. The

historical Dead Sea was divided into two parts, the deep northern and shallow southern basins. Today, these basins are fully disconnected, divided by the Lisan peninsula, a diapir, or upward intrusion of low-density geological material. As the water level in the Dead Sea declines, this landform becomes more and more exposed; this exposure results in instability, and—as water levels continue to drop and additional unstable land is left uncovered by the lake—the threat of collapse and corollary consequence rises in probability as well as potential significance (*Lisan Peninsula*, n.d.). Today, the Dead Sea is effectively comprised of only the northern basin, existing in its natural entirety. The southern basin is no longer a natural water body, but instead a collection of manmade evaporation pools used and exploited commercially by chemical companies as well as the tourism industry, promoting an image of a rare natural wonder that in reality ceased to exist long ago (Pletcher, 2022).

History of Extraction and Conflict

The Dead Sea Works (DSW) was established in 1929 by Israeli engineer Moshe Novomeysky during the time of the British Mandate for Palestine. Novomeysky was granted a concession for extraction and, with this allowance granted by the British mandatory administration, Palestine Potash Limited—the original title for the DSW—was created. Many Palestinians protested this permission, an outward expression of British political preference towards Zionist interests, and described the concession granted to Novomeysky over local Palestinians who were interested and even active in mineral extraction as a “robbery” (Norris, 2011). In a letter of official protest delivered to the British House of Lords, the concession was asserted as a “political weapon against the rights of Arabs and their interests” and affirmed as a tool used to

exclude Palestinians from engaging with and benefiting from this unique—and immensely lucrative—body of water (Abu-Baker & Farah, 2020). The demurrals were ignored by the mandate authorities and this pattern of exclusion was set as a precedent that continues to this very day. In 1953, the state of Israel renamed and reestablished the mining company as a subordinate branch of Israel Chemicals Ltd. (ICL), giving it the title it carries to this day, the Dead Sea Works. The DSW is the world's fourth-largest manufacturer and supplier of potash products and is well-known not just for the scale of its operations, but for the unique methods used to produce potash and other mineral products (ICL - 2021 Corporate Responsibility Report, 2021). Before it can be sold, either as a raw material or in a further processed state as fodder for fertilizer or other refined products, potassium is extracted through an evaporation process which occurs in a series of man-made pools.

These Dead Sea evaporation pools, artificial water ponds that make up what was once the lake's southern basin, are maintained and utilized as sites of extraction by Israel—through the Dead Sea Works—and by Jordan as well—through the Arab Potash Company. These artificial evaporation pools are perceived as natural by many tourists, travelers, and other individuals who encounter these sites. As they take in the view, snap pictures, and float in what they think—without doubt or hesitation—to be the Dead Sea, these individuals have no idea that the water they see is an artificial construction, supporting both regional tourism and chemical manufacturing.

The extraction technology employed at the Dead Sea is publicly framed as a more natural and less harmful alternative to traditional mining practices; unfortunately,

however, this method is not without its own set of consequences. The industrial solar evaporation ponds operated by both corporations are responsible for an estimated 30-40% of the depletion of the Dead Sea. Additionally, these extraction activities have resulted in the formation of sinkholes, a natural catastrophe of land collapse that will only increase in incidence and impact as potash production continues (Surkes, 2019). These massive craters render large parts of the region wholly uninhabitable. Tourism sites are forcibly abandoned, roads are destroyed and closed off entirely, agricultural operations are permanently ended, beaches are barred off from the public, and towns are rendered unlivable, with residents forced to relocate elsewhere. While potash products are extremely lucrative, creating significant employment opportunities within one of Israel's largest industries and bringing in massive sales revenue from both domestic purchases and international exports, the noncommercial social and environmental costs of resource extraction must be considered if there is to be any hope of saving the Dead Sea from total devastation.

Potash Extraction in Israel/Palestine and Jordan

While this salt lake resource is geographically shared by Israel/Palestine and Jordan, the Dead Sea is not evenly—or equitably—divided among involved stakeholders. The area of land that encompasses the northern Dead Sea and the Jordan Valley contains the largest land reserves in the West Bank, making up 22.8% of this territory (Hareuveni, 2011). The massive pumping of water conducted by Israeli industries prohibits Palestinians from equal access to water resources and prevents the distribution and transport of water to communities further on the periphery, exacerbating the deficit faced by these

groups and deepening their struggles for survival. Within its borders, Israel controls all engagements in elemental manufacturing, dominating and commandeering these profitable industrial opportunities; despite their presence and claims to the land, Palestinians in the region are excluded from reaping the immense benefits Israeli society enjoys from this highly commercial enterprise.

Mineral extraction companies on both sides of the Dead Sea continue to operate their production plants, extracting high-value potash from the salt-laden lake, despite a significant acceleration of environmental degradation. In addition to the intensive industrial operations, water is continuously diverted from the Jordan River; this act further harms the Dead Sea, intensifying the environmental damages faced by this natural resource. Negotiations between Israel and Jordan about saving the ‘dying’ Dead Sea, a grim fate driven largely by acts of extraction, are often undermined by enduring sentiments of tension and distrust (Bulos, 2021). In the 1994 Peace Treaty between Jordan and Israel, cooperative projects, committees, and other joint efforts were established in an attempt to provide adequate water to both regional polities. Unfortunately, due to the vague and ambiguous nature of the treaty, water conflict and ecological crises rose alongside tensions between the nations (Kramer, 2011). The water agreements outlined in the terms of the peace treaty failed to specify quantity and quality requirements for water shared between the powers, and this oversight led to inadequate supplies of water—at times, water supplies of unacceptably poor quality—apportioned to Jordan by Israel. This led to further political friction and feelings of distrust. The asymmetry between the countries is also an important condition to note; there is a

significant imbalance in financial resources, capacity, resource claims, and control held by both nations. This further complicates attempts to protect the Dead Sea as a natural space and a high-value resource. While both Israel and Jordan currently profit from potash extraction, if cooperative action to bring about necessary change is not prioritized and effected soon, this gainful sector may collapse entirely, bringing down not just an industry but an entire ecosystem.

Usage of and Demand for Potash

Potash is the common name given to a class of minerals, chemicals, and salts rich in potassium. Potash deposits originate from ancient seas; as these water bodies dried up, they left concentrations of marine salts in their wake. These evaporite deposits, often found far below the earth’s surface, contain an abundance of salts, clays, and other minerals. Most importantly, these deposits contain large amounts of potash. This potassium salt is most often used as an agricultural fertilizer. However, this product can be used for a number of other purposes including the manufacturing of chemical products, animal feed, pharmaceuticals, and more. Potash is rich in soluble potassium, which is one of the primary macronutrients needed for plants to grow. As the global population continues to rise, so will the need to feed this dramatically expanding populace (*Advancing Food Security*, 2021). Thus, the demand for food crops will increase in parallel, placing incredible pressure on the agricultural industry. Potassium, supplied through potash fertilizer, increases both the quantity and quality of food crops. The use of potash fertilizer helps to replenish levels of potassium present in soils, which are often depleted of natural concentrations of this nutrient due to intensive cultivation. This is crucial in improving the health of crops and the ability to generate a successful and plentiful yield of food products, crucial

to meeting the growing global food demand and ensuring food security across the world (*Fertilizer Volatility and the Food Crisis*, 2022). As more and more people contribute to an ever-growing demand for food, the demand for potash fertilizer increases in parallel. This in turn prompts an increase in mining and extraction activities, an act with immense social, economic, and environmental impacts.

Impacts of Potash Extraction

As mentioned earlier, there are a number of ecological consequences connected to the extraction of potash from the Dead Sea. The extraction process triggers a disruption of equilibrium, preventing the ecosystem from functioning normally and drastically changing the essence of the environment. These environmental ills include shoreline retreat, sinkholes, evaporation, increases in salinity, and ecosystem loss. As the sea level continues to drop—a change driven by extraction activities, water diversions, and other highly impactful activities—incidences of sinkholes and a related recession of the lake’s shores occur increasingly. Despite the undeniable harm caused by sinkholes, damaging infrastructure and preventing regional development, the lower the water level in the Dead Sea, the more favorable it is for the extraction industry. With less water present in the Dead Sea, the mineral content and concentration is higher, allowing for easier mineral extraction (Willner et al., 2015). While this is ostensibly good for the extracting corporations, it should be noted that this victory is very shortsighted and will be even shorter lived, as these environmental issues will interact with and exacerbate each other, creating even further ecological harm.

These environmental problems spill over into the social sector as well. Ecosystem

ruination renders many lands destroyed and deserted. Various natural catastrophes lead to a loss of inhabitable living space in the region, which in turn leads to “environmental migration.” The Dead Sea region is becoming less inhabitable, with conditions growing more severe with each passing day. Solastalgia is a term that describes the emotional pain, suffering, and loss of sense of place that results from rapid and significant changes in the ecological condition of an area. This sentiment can be felt by many who visit the sea today and confront its current state, facing the rather grim reality of the ‘dying’ Dead Sea. Although environmentalists and ecological organizations have sounded the alarm about the state of the Dead Sea for quite some time, this dire call to action has been largely ignored by the authorities responsible for overseeing and protecting this resource. Because the potash extraction industry is so lucrative, with Israel one of the world’s top producers, the Dead Sea’s critical condition isn’t given the attention it so desperately needs. The current economic inflow from the extraction of potash and other minerals, ironically, blinds corporations and governing entities to the financial catastrophe that will arise if drastic action is not taken.

Conclusion: What Comes Next?

While water diversion and evaporation in the Jordan River—a tributary of the Dead Sea and its primary influent—is attributed as the main cause for the ‘death’ of the Dead Sea, potash extraction greatly exacerbates this ecological crisis. Of the nearly 800 MCM of water lost by the lake each year, 250-350 MCM is lost as a direct result of mining activity in the region (Rabinovitch, 2018). As the Dead Sea continues to shrink, government intervention remains minimal. The Israeli administration rarely steps in to mediate the mining practices of Dead Sea Works, one of the largest potash extractors

responsible for egregious environmental problems. Today, the DSW—operating under ICL—has little motivation to change its ways. There is a growing demand for potash products across the world, with this mineral fertilizer heralded as a promising solution to the global food crisis. If there is any hope for the survival of the Dead Sea, massive changes must be made. Israel currently can update and re-tender its concession with Dead Sea Works. In this renegotiation of operational terms, there is a valuable opportunity to enact standards, rules, and regulations that can help balance economic and environmental interests. While profit is certainly a major consideration, this profit will collapse if the natural resource from which it flows crumbles (Rabinovitch, 2018). Hopefully, environmental concerns will be given the consideration they deserve, and governing bodies can use the power they yield to protect this rare and unique ecological wonder, preventing the Dead Sea from living up to the fate of its name.

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Sand Export in Southeast Asia

Keshet Peleg

Introduction: An Overview of Southeast Asia

Southeast Asia refers to a region of Asia east of the Indian subcontinent and south of China. It is divided into two different parts: mainland Southeast Asia and insular Southeast Asia (a group of islands near the mainland). All Southeast Asia is characterized by a tropical and subtropical climate. Much of the region receives a high amount of precipitation, and its landscape is based on three combined elements: mountain ranges, plains, and plateaus. The water paths come in the form of shallow seas and large drainage systems.

The rivers in Southeast Asia bear great cultural and historical significance, for they have affected human lives by shaping settlements and agricultural methods as well as determining crucial political and economic patterns.

The Mekong River is Southeast Asia's most important river. It flows from China's Tibetan plateau through Myanmar, Lao PDR, Thailand, Cambodia, and Vietnam into a large delta and then to the sea. For millennia, this river has supported the rise and fall of empires. Today, over 65 million people living along its banks depend on it for food and employment (Leinbach, 2022).

Sand Mining in the World

Sand is an indispensable material for modern life. It is used to make glass, electronics, paper, and cosmetics. The construction industry consumes the lion's share; sand is used in roughly two-thirds of reinforced concrete. Global concrete production required an estimated 25.9 to 29.6 billion tons of sand in 2012, according to UNEP. That is enough concrete to

construct a wall 27 meters high and 27 meters wide around the equator (Peduzzi, 2014).

Singapore: the Main Consumer of Sand

Singapore has become one of the world's richest countries and the leading economy in Southeast Asia because of its outstanding socioeconomic development. Even so, a critical challenge has been present for decades: the amount of available land in Singapore is limited, resulting in skyrocketing housing and infrastructure construction along with massive land reclamation. These measures require enormous sand supplies (The Asia Post Team, 2018).

Because Singapore's own sand deposits were drained long ago, it has become the world's leading sand importer by buying sand from Southeast Asia's neighboring developing countries (Cambodia, Indonesia, Malaysia, Myanmar, and Vietnam) with significant negative external costs imposed on them.

The local population, ecosystems, and biodiversity suffer from sand mining's destruction of the Mekong, other rivers, beaches, and small islands in the South China Sea (The Asia Post Team, 2018).

In the absence of technological or economic alternatives, Singapore's economic growth is inevitably reliant on sand imports. Because of Singapore's continuous growth and plans for more intensive land use and further land reclamation, this dilemma will likely worsen in the future. Singapore's total land area has increased by more than 25% since the country's inception. The island city-state's land has grown from 578 square kilometers (km²) in 1819 to 719 km² today (The Asia Post Team, 2018).

Singapore's supply of sand is collected

legally and illegally, through smuggling and deals with corrupt officials in origin countries (The Asia Post Team, 2018). In otherwise vulnerable economies, sand mining provides quick yields. A load of sand can bring between \$700 and \$1000 USD. In Vietnam, for example, sand mining is extremely appealing, when compared with the average monthly income of \$269. Governments that prohibit sand extraction have to assist sand miners in finding alternative livelihoods (*ASEAN Today*, 2021).

Damage in Southeast Asia

Sand mining has a wide range of negative environmental consequences. It damages vulnerable habitats and protected areas such as mangroves, seagrass beds, and coral reefs, reducing biodiversity in these areas. Conservation of such unique habitats and areas requires a ban on mining activities as well as strict local control and enforcement. The extension of prohibitive regulation to all areas outside of protected areas, on the other hand, is incompatible with rising sand demand. Nonetheless, negative effects of sand mining occur outside of protected areas: water flow and marine currents become altered, fauna is destroyed, and fish and crab populations decline, resulting in a loss of fishermen's livelihood. Furthermore, biodiversity decreases, infrastructure is damaged, flood regulation and protection are hindered, and agricultural use of floodplains is confined. The water table lowers, hampering water supply and recreational functions. Geomorphic changes such as riverbed incision, subsidence, and coastal erosion have been documented in recent geographic studies of Southeast Asia's Mekong River and its delta. Sand mining has been identified as a major contributor to the geomorphic changes in subsequent geographic studies. Similarly, evidence suggests that maritime sand mining is to

blame for the decline of small islands in the South China Sea and Indonesia (Hübler & Pothen, 2021).

Territorial Effects

The removal of sand from one country for use in land reclamation in another, sand trading (and smuggling) has a major impact on the concept of territoriality. Singapore's actions have created the possibility of effectively transferring territory between countries. A country can be "forced" to make this transfer through sand smuggling.

Sand has also had an impact on the already tense relation between Indonesia and Singapore. The Indonesian navy was called in to capture sand dredgers transporting sand from Indonesia's Riau Islands to Singapore. According to reports, "Indonesia has already lost 24 islands in this province due to sand mining" (Wikipedia, 2022) because their location- next to Singapore's' border-makes them an easy target for sand smugglers. Another 83 small low-lying islands are threatened with extinction (Wikipedia, 2022).

Damage to the Mekong Delta

The Mekong Delta is one of the most productive agricultural regions in Southeast Asia and is essential to the regional and global food systems. It is home to 20 million people and produces nearly one-fifth of the world's rice. "The total amount of sand mined in the Mekong Delta in 2015 was 38,000,000m³. Three years later, in 2018, the estimate was 43,000,000m³" - more than double the officially declared amount. The volume increased further in 2020, reaching an estimated 47,000,000m³ (Park, 2022).

Agriculture

Since sand mining deepens riverbeds in the delta, saltwater infiltrates the river system

more and more during the annual dry season. Because of the deeper riverbeds and lower flows, saltwater remains in the delta for longer, killing crops. Drought and record-low water levels worsen the situation. In many parts of the lower Mekong, the riverbed is sinking by 20-30 centimeters per year. Because of sand mining and dam effects, the Mekong Delta may lose much of the sediment that keeps it from being carried away by salt water. This creates riverbed dredging and brings new uncertainties, putting farmers in the region at risk at a time when many people are concerned about the stability of our food supply (*ASEAN Today*, 2021).

Lost Houses

Every year, the delta loses more than 600 hectares of soil from riverside and coastal land due to erosion. According to official statistics, 1,808 houses in the Mekong Delta sank into rivers or the sea due to erosion between 2018 and 2020., with damage costs reaching up to VND 200 billion.[Tuyen 2022]

Illegal Sand Mining

In the Mekong Delta, illegal sand mining is common. There is no centralized regulating authority in charge of the entire sand sector. Sand is commonly smuggled by companies across provincial borders in order to avoid both authorities and reporting obligations. To evade regulators, smugglers frequently operate at night.

How Southeast Asian Countries Address Sand Mining Problems

Indonesia, Cambodia, Malaysia, and Vietnam have all adopted sand mining regulations, some focusing directly on trade with Singapore. However, much of the industry is illegal. Between 2007 and 2016, only 3.5% of sand exported from Cambodia to Singapore was recorded by the

Cambodian government. (*ASEAN Today*, 2021).

On January 23, 2007, Indonesia announced a ban on sand exports to Singapore. This decision was based on the country's concern that sand extraction activities were causing environmental destruction. Singapore was importing six to eight million tons of sand at the time, with more than 90 percent arriving from Indonesia. This led to a "sand crisis," which nearly halted construction work in Singapore (Moon et al., 2020).

According to residents, the level of illegal sand mining in Vietnam expanded dramatically during the country's COVID-19 lockdown (Tuyen, 2022). Vietnamese authorities have attempted to bring an end to illegal mining and have captured several violators, but the problem remains. From 2011 to 2020, Vietnam earned \$212 million USD from sand exports. During the same period, other countries have reported sand imports from Vietnam worth close to \$705 million USD - 3.3 times more than Vietnam reported. Only pre-existing export agreements could be continued after Vietnam prohibited sand exports in 2017. After that, the gap shrank significantly. In addition to restricting sand exports, the state has also adopted regulations to prevent excessive dredging. Vietnam is also considering producing artificial sand (Tuyen, 2022).

In 2018, Malaysia, formerly Singapore's largest sand supplier, banned the export of sea sand, which is used for land reclamation, and tightened controls on river sand, which is mostly used in construction. Cambodia took a similar step in 2017.

The bans have pushed Singapore to pursue alternative supplies from countries such as Myanmar. According to recent UN data,

nearly 1 million tons of sand were shipped from Myanmar to Singapore in 2018, earning over \$6 million USD. According to the Myanmar government, that amount is expected to grow as a result of the Malaysia bans (Moon et al, 2020).

What Now? Academic Policy Recommendations

There are two policy frameworks that contribute to discussion about sand-related policy, especially when it comes to transboundary environmental governance. First, in academic research and governance, a resource like sand must be conceived beyond its economic value to include its socio-ecological characteristics, such as links to livelihoods and migration. The transboundary governance of sand must consider the mobility and flows of people and resources. Second, beyond the nation-state, Transboundary environmental governance is conducted at multiple scales. Flows are not only governed 'from above,' [by the state for example], but are also shaped by place (Huber et al, 2022). This framework has inspired the following policy solutions: Developing countries may impose synchronized, uniform taxes on all sand extraction activities to prevent "sand leakage" to untaxed countries or sectors. As an outcome of less sand mining, they will benefit from better environmental and social conditions, in addition to profiting from higher sand prices (including the tax rate) (Hübler & Pothen, 2021).

Making sand more expensive can lead to technological progress in the search for ways to recycle concrete or replace natural sand with modified sand from deserts or other man-made, recycled, or natural materials, while making those alternatives to sand economically competitive. However, further political neglect of the global sand

challenge could impede further housing and infrastructure development, which would be detrimental to both developing countries and industrialized countries (Hübler & Pothen, 2021).

Cement manufacturing is a substantial source of CO₂ emissions worldwide (due to process emissions and energy use for heating). Sand taxation is undoubtedly not the best instrument for addressing this problem, but in the absence of CO₂ pricing, sand taxation can mitigate climate change by increasing the cost of cement production.

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Corn Production in the United States

Buddy Bomze

History of Corn in the US

Maize (*Zea Mays*), now commonly referred to as corn, started to undergo domestication 10,000 years ago in the Mexican highlands, and was an important agricultural resource for many Mesoamerican civilizations due to the ease with which high amounts of corn can be produced and stored (Garcia-Lara and Serna-Salvidar, 2019). Furthermore, the trading and farming of corn during these civilizations dispersed the crop throughout North America, helping it reach the southwest US by 700 C.E. and the northeast US by 1400 C.E. When the Europeans arrived on the East Coast of North America, corn quickly became an important part of their lives (Warntz, 1957). Colonists in North America learned about the cultivation, storage, and preparation of corn from native Americans. Corn was adopted rapidly by new colonists because of its high yield properties. In 22 years, the young Virginia colony went from minimal corn acreage to yielding enough corn to allow for export back to Europe (Warntz, 1957).

Corn production in the US rose as soon as the country was established. After the revolutionary war, settlers moving to the frontier states of Tennessee and Kentucky farmed corn. This created a trend of increasing corn production with increasing frontier settlement in the early US. For example, rapid settlement of the prairie states in the mid-1800s caused the national production of corn to more than double over a 20-year period (Warntz, 1957). This frontier settlement and related corn farming created the first corn belt, or geographically concentrated area of corn production in the US. This first corn belt was centered near

Louisville, KY. As westward expansion continued, the corn belt slowly moved, eventually settling around Illinois. By 1879 corn had already become the most common agricultural crop in the U.S. Though corn production in the US continued to grow between the Civil War and the Great Depression, almost no increase in yield per acre was observed; all growth in corn production over that period was generated through increased land use. One propellant for the increase in cultivated land during this period was the Homestead Act of 1862, as the U.S. government gave away land on the frontier in exchange for cultivation of that land.

Following the Dust Bowl and the Great Depression of the late 1920s and early 1930s, farmers were looking for ways to stabilize and increase their own income. This caused the rapid adoption of hybrid corn in the late 1930s (Nielsen, 2022). Hybrid corn is corn that has been intentionally crossbred to enhance certain traits. When hybrid corn began widespread usage, the number of seed companies in the market skyrocketed to 190. The adoption of hybrid corn created a steady and significant increase in yield per acre from the 1930s until the 1950s. The economic and environmental conditions of the 1930s also generated the first U.S. farm bill, the Agricultural Adjustment Act (AAA) of 1933. As part of the New Deal, the AAA was designed to help raise the price of crops by lowering the supply. The AAA included subsidies for crops left unharvested and for land left unfarmed (Devarenne and DeSimone, n.d.).

In addition to rapid adoption of hybrid corn over the first part of the 20th century, the U.S. also saw a dramatic decrease in the diversity of corn being grown. In the 1920s white corn and yellow corn each made up

50% of US production (Troyer, 1999). However, after research was published showing that yellow corn provided better animal feed than white corn, a dramatic shift towards yellow corn took place and by 1970 white corn only made up 1% of corn grown in the US (Pruitt, 2016).

In the 1960s, the world experienced the green revolution which leveraged high input farming to further increase per acre yields. This change in farming methodology created an even larger constant yearly increase in yields than the adoption of hybrid corn. In 1970, the Plant Variety Protection Act (PVPA) established intellectual property protections for hybrid seeds. This additional revenue protection led to an increase in mergers and acquisitions in the corn seed industry that resulted in the top 4 corn seed companies controlling 69% of the market (Fernandez-Cornejo and Just, 2007). The 1970s was also the first time that ethanol was subsidized, developing another profitable use of corn.

Historical increases in yields led to a harvest of 384 million metric tons of corn in the US in the year 2021, one third of global corn production. As of 2021, there were 93.4 million acres (about half of Texas) of corn crop harvested in the US. Of the corn produced in the US, most of it is used for animal feed and ethanol production (USDA, 2022). Another important trend that can be found in US agriculture is consolidation. This consolidation is taking place in companies that produce farm inputs and farms themselves as well as companies that purchase harvested crops from farms. The midpoint farm size for corn production in the US more than doubled between the years 1987 and 2012 (Macdonald et al., 2018). Additionally, since the 1930s, 4 million farms have been lost to consolidation and

more than 1.5 million jobs in agriculture have disappeared (Macdonald et al., 2018).

Geopolitical Impacts

Politics

Corn farming in the US has had profound impacts on domestic politics. The highly consolidated corn farming industry has contributed to a legislative system with enormously powerful lobbying groups. These groups have worked hard to change the functions of US agricultural legislation to their benefit at the expense of farmers and consumers in the US. For example, in the original AAA, subsidies were paid for using taxes levied against companies that produce farm products. In 1938, the source of funding shifted to the federal government. Much later in the 1970s agricultural legislation underwent a massive shift as the world faced a major food shortage. The new system of subsidies shifted the goal from avoiding market surplus to protecting sale prices while increasing production. Additionally, cropland use was deregulated to encourage production. Production growth and guaranteed sale prices were lobbied for by major corporations and are now protected vehemently by those same corporations. What followed this legislation was massive overproduction of corn and the benefits of subsidies enjoyed by large industrial farms. The 1970s ethanol subsidy created yet another way for major companies to create profit from government-subsidized corn. This pattern of large agribusinesses lobbying for subsidies that benefit big agriculture and increase corporate revenue has continued successfully to this day with only a few minor setbacks (Kammer, 2021). The US agricultural system has become locked in a positive feedback loop in which subsidies strengthen corporations through higher profits and those corporations use their increasing strength to lobby for the

continuation of subsidies.

Consumers

The impacts of these subsidies are far reaching and concern access to nutritional food and environmental problems associated with large scale farming. By making corn abundant and inexpensive, the US government is promoting the use of corn. Yet corn-derived food products often have negative health impacts. High fructose corn syrup for example has been linked to increased weight gain. “Changes in relative prices, in no small way attributable to government subsidies for corn and soybeans, are affecting how Americans eat for the worse” reports Anthony Kammer (2012) about the impacts of farm bill subsidies on American food consumption.

Given that a large share of the crop farming in the US is dedicated to corn, it is reasonable to assume that many of the well documented impacts of large-scale agriculture are in part due to corn farming. Practices such as large monocultures, high-density planting, extensive use of fertilizers and pesticides, and continuous farming of the same land result in biodiversity loss, increased soil erosion, and water pollution (Kammer, 2012 and Ackerman et al., 2003).

Farmers

Corn farming in the US has caused a reduction in farm operator income. The median revenues from farming related activities in 2017 was \$ -1,035 meaning that more than half of individual farmers lost money in 2017 growing season. Furthermore, 6.8% more US counties reported negative farm income in 2017 than in 2002 (Burchfield et al., 2022). Furthermore, government subsidies are making up an increasing portion of the income of farmers. The negative revenue

generated by farmers in recent years is caused by two factors: rising input costs and shrinking returns on production (Burchfield et al., 2022). In 2019 farmers spent 82.5% of earnings on inputs. These economic conditions have real impacts on farmers. According to the CDC, farmer suicide rates in the US are significantly higher than the national average (CDC, 2020).

In addition to impacting US corn farmers, US corn production also profoundly impacts farmers in other countries. In 2019, the US was responsible for 38% of global corn exports (Ye, 2019). Though this percentage has been falling in recent decades, the saturation of global markets with subsidized US corn has driven down the market price of corn. This low price makes it hard for small farmers around the globe to continue earning a living through farming (Kammer, 2012). Because US farm subsidies control the global price of corn, they impact corn farmers worldwide. Furthermore, when farmers in other countries are pushed out of the farming market those countries become dependent on corn from the US. This dependency reduces overall global food security as it concentrates risk on one geographic location, the US corn belt (Kelly, 2019). If weather in the corn belt changes dramatically or the US has a major crop failure, the entire world will feel the potentially destabilizing impacts of a corn shortage.

Corn has been used to develop the power of empires in North America for thousands of years. Since the birth of the US, increasing corn production has been an important part of the national economy. Today, the US is the largest producer and consumer of corn worldwide. This monocultural agriculture is supported by government policy and has led to commercialization of the US farming system. The geopolitical impacts of corn production and the system that has developed around it are extensive. In

addition to US farmers, consumers, and the environment, international farming families and global food security are also impacted by US corn production.

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Russia and Oil

Asher Wexler

Oil Extraction: The History

Russian oil and gas extraction debuted in the Baku region of present-day Azerbaijan in the early 1800s. The Czarist government established a state-run monopoly to oversee a primitive oil extraction operation, featuring eighty-two hand-dug wells in 1829. The project was handicapped by corruption, irresponsible central planning, geographical isolation, and poor transportation infrastructure (Ermolaev, n.d.). The state ultimately terminated the monopoly and in the 1870s, private entrepreneurs began investing in state-of-the-art extraction and refinery facilities, boosting output to almost eleven million barrels by the end of the 1880s—one third of American output at the time (Ermolaev, n.d.). Prominent entrepreneurs included Ludwig and Robert Nobel - brother of the chemist Alfred Nobel - and the Rothschild family (Siegel, n.d.).

During the first half of the 20th century, the Russian oil industry was characterized by inconsistent extraction, high internal demand, and limited exports. Oil from the Baku region was essential to industrialization efforts in late Imperial Russia, but technology availability problems stalled extraction (Ermolaev, n.d.). Between 1917 and 1920, social unrest in Baku - the culmination of political instability during World War I and the October Revolution, as well as subsequent British intervention in the region - complicated state attempts to boost oil output (Sicotte, 2018). Between

1929 and 1932, exports rose to 6.1 million tons, but subsequently plummeted to 0.4 million in 1938 and zero by the onset of World War II. The Soviet industrial machine craved every drop of the 34 million tons of oil produced in 1940 (Hellin, 2022).

After WWII, Joseph Stalin invested heavily in the oil industry, recognizing both the USSR's economic dependence on oil and the economic potential of oil extraction. State investment completed the transition from the now-exhausted deposits of the Baku region to those recently discovered in the Volga-Ural basin. And to great effect - the Volga-Ural basin proved to be a hydrocarbon honeypot. Oil output doubled between 1955 and 1960. Exports rose from 57 million tons in 1964, to 111 million in 1970, 183 million in 1980, and 216 million in 1989 - a trend explained partially by the Soviet Union artificially decreasing oil prices to attract foreign buyers (Ermolaev, n.d.). Soviet oil production peaked in 1975, shortly before the Volga-Ural basin deposits ran dry and industry transitioned to Western Siberia, where oil was discovered in the 1960s (Ermolaev, n.d.). In the 1980s, the Soviet Union was characterized by an increasingly precarious economy, which bore witness to a major oil crisis associated with Gorbachev's Perestroika reforms.

Russia's dependence on oil continued even after the fall of the Soviet Union. In fact, the Russian Federation has exported more oil as a percentage of GDP than its predecessor (Ermolaev, n.d.). Today, Russia is the second largest oil exporter, 50% of which goes to Europe. The Europeans, in

turn, rely on Russia for 25% of their energy demand. Almost half of Russia's federal budget is allocated to oil-related industries, which account for 30% of Russian GDP (Pisenti, 2022). Vladimir Putin especially has relied on oil to attempt to regain USSR-tier international dominance. Although Putin has failed to actualize dreams of becoming the next Stalin or Krushchev, he does trail in their oily footsteps.

Oil and Geopolitics

The history of Russian geopolitics is inextricably linked to oil, a relationship that begins with the region's proclivity for authoritarian governance. Since the first Czarist extraction projects in Baku, the Russian government has controlled the oil industry, coupled oil profits with economic growth, and relied on oil to finance military spending (Ermolaev, n.d.). The latter is especially important because it means that Russian military power and national security is directly proportional to the prosperity of the Russian oil industry. This is evidenced by the way high oil prices are correlated with Russian military aggression, and low oil prices with more diplomatic activity, especially towards the West (The Economist Newspaper, n.d.). In recent years, the late American senator John McCain likened Russia to a gas station, and the Russian government to an oil company that collects taxes. Today, the state owns half of the shares of Gazprom - the country's largest oil company responsible for 12% of the world's gas supply. The state also owns Rosneft, which produces 40% of Russia's oil. Vladimir Putin counts the CEOs of both companies as trusted friends in his inner

circle (Pisenti, 2022). -In this way, the Russian condition itself represents the nexus of geography and politics that is geopolitics. USSR oil politics during the Cold War serves to contextualize Russia's current geopolitical circumstances. In 1986, the US Bureau of Mines noted that "the Soviet Union was the only big industrial nation whose policy was aimed at ensuring a never-ending increase of raw material output in order to achieve sufficiency for itself and its allies, as well as to export them to get hard currency" (Ermolaev, n.d.). This is largely due to the Soviet's Central Planning Committee's intention in 1961 to "increase oil output fivefold by 1980, reaching 690–710 million tons" - a strategic, and ultimately offensive economic policy (Ermolaev, n.d.). The USSR sought to utilize its vast oil to influence both sides of the Iron Curtain, satiating its own hydrocarbon appetite while simultaneously exporting oil outside the red bloc in order to engender oil dependents (Siegel, n.d.). A war without direct military engagement initiated 45 years of economic proxy wars, featuring industrial competition and commercial colonialism, both of which orbited around oil.

After the 1986 oil crisis, which eventuated the USSR's subsequent economic and ultimately political unraveling, Russia's oil industry fractured. What used to be Russian oil reserves and Russian infrastructure - primarily pipelines to Europe - became Ukrainian, Azerbaijani, Kazakhstani, and Georgian (Siegel, n.d.). Geography made infrastructure fracturing an especially terrific blow to the Russian oil industry. Because

the USSR only controlled a couple warm water ports - and those ports were very susceptible to western naval blockade - the Soviet economic planning authorities invested almost exclusively in terrestrial infrastructure to pump oil to Europe (Pisenti, 2022). Furthermore, these newly independent states intended to exploit their hydrocarbon honeypots and utilize the conveniently pre-existing extraction and transportation infrastructure, especially with the help of western oil companies (Siegel).

This new geopolitical reality helps explain the war in Ukraine. Vladimir Putin's primary objective is to restore Russia to the heights of Soviet power and restore the Soviet bloc's oil monopoly - a crusade that began with the annexation of Crimea. But Putin holds a ticking time bomb. Europe has long been Russia's most loyal oil customer - a relationship justified by geographical proximity and the EU's meager internal oil reserves (Harvey, 2022). However, as European economies become increasingly reliant on green energy (for both environmental and national security reasons), European dependence on Russian oil decreases. As such, Russia is in danger of losing critical economic leverage over Europe, not to mention a huge decrease in federal revenue from which to siphon into the military budget (Harvey, 2022). The invasion of Ukraine, therefore, was strategic and timely, as Russia weaponized European oil dependency.

Oil and Development

Russian development in the periphery - primarily the steppes and Siberia - is largely

the result of oil extraction. Russia's geography, combined with the unfortunate coincidence that nearly all the country's oil deposits are extremely inaccessible, presents serious logistical barriers to the oil industry (Pisenti, 2022). In the past century, oil extraction in the periphery served to catalyze the development of transportation infrastructure, especially trains (Sector, n.d.). At the turn of the 20th century for example, the Rothschild family helped finance the Caspian and Black Sea Petroleum Company's railway connecting the Caspian with the Black Sea. Similar projects characterized the expansion of the Russian oil industry into Siberia and elsewhere (Siegel, n.d.). In this way, the geography of oil deposits determined development. In addition, Russia's successful oil industry fueled the industrial machine that propelled the Russian economy into modernity, in the 1920s and 1930s (Byers, 2016).

Oil and Socioeconomics

The viability of the Russian economy is irrevocably linked with the profitability of the Russian oil industry; the condition that once characterized the Soviet Union now continues to characterize the modern Russian state. Dutch Disease Theory posits that the rapid development of Russian oil is responsible for the relative decline in other sectors (Ermolaev, n.d.). This theory reflects the larger vulnerability of the Russian economy. Reliance on oil has made the economy susceptible to oil price volatility, a plight associated with the economic crises caused by drops in oil prices in 1982, 1986, 1998, 2008, and 2014

(The Economist Newspaper, n.d.).

Government control of oil extraction is largely to blame. During the Soviet period, command economy institutions failed to adapt to oil price volatility and the general unpredictability of world markets. The system was further stymied by information shortages and bureaucratic complications, all of which culminated in severe economic miscalculations (Ermolaev, n.d.). One prominent member of the Soviet Academy of Sciences, Gregory Arbatov, reflected on the logic of oil dependence, noting that oil extraction was a “cure for Russia’s problems” (Ermolaev, n.d.). Arbatov wrote, “do [we] really need to solve the food problem radically and quickly, when it’s so easy to buy tens of millions tons of grain, followed by huge amounts of meat, and other food products from America, Canada and Western European nations? Do we really need to pull our construction industry out of the horrible underdevelopment, if we can just utilize Finnish, Yugoslavian or Swedish construction specialists?” (The Economist Newspaper, n.d.). Only when it was too late did Soviet economists realize that oil ultimately handicapped their economy. Today, Russia continues to suffer from resource curse symptoms - especially corruption. Oil extraction benefits the elite and finances their luxurious lifestyle at the expense of the Russian proletariat. Corruption entrenches the elite who perpetuate the negative feedback loop.

Russian Oil Commodity Chain

There are three primary links in the hydrocarbon commodity chain: extraction

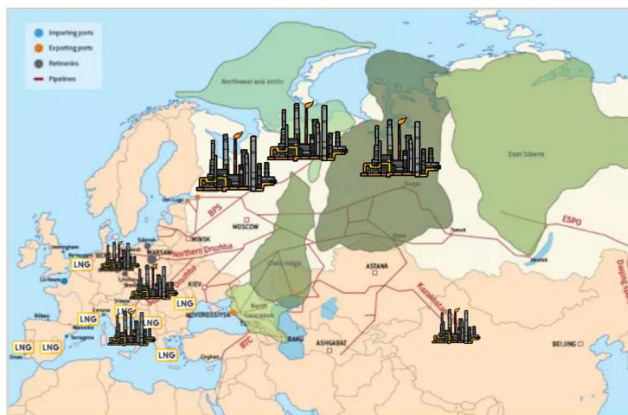
and transportation, refining, and consumption.

- I. Russian hydrocarbons are extracted from the following deposits: Timan Pechora, Messoyaka, Yamburg, Urengoy, Yakutsk Arba, Okha, Indiga, and Murmansk (TheRealSengupta, 2021). These hydrocarbon deposits are located almost exclusively within the Arctic Circle, in the Northwest Arctic, Western Siberia, and Eastern Siberia. Raw crude is transported via pipeline, roadway, railway, and by ship. Russian pipelines span across Eurasia, pumping crude to China, Japan, Central Asia, Turkey, and Europe. Notable Russian pipelines to Europe include the Northern and Southern Druzhba, the Baltic system, and Nord Stream 1. Russian LNG tankers also transport LNG to ports in Spain, France, Italy, Portugal, Belgium, the Netherlands, Croatia, Poland, Greece, and Lithuania (Lee, 2022).
- II. Russian crude is refined primarily either inside Russia or in Europe - especially central and eastern Europe, though Russian crude is also processed in China, Japan, and elsewhere. Russia’s largest hydrocarbon companies,- Lukoil, Rosneft, and Surfutneftegas,- operate refineries both inside Russia and in Europe. Lukoil operates four refineries inside Russia - in Perm, Volgograd, Nizhny, Novgorod, and Ukhta - and four in Europe - in Italy,

Romania, Bulgaria, and the Netherlands (LUKOIL, n.d.). Rosneft utilizes 13 refineries inside Russia - in Komsomolsk, Angarsk, Achinsk, Tuapse, Kuibyshev, Novokuibyshev, Syzran, Saratov, Ryazan, Bashneft, and Yaroslavl. Rosneft also owns refineries in Germany, Belarus, and India (Rosneft). Surgutneftegas crude is refined by the Kirishineftegointez refinery in Northwestern Russia (Surgutneftgas, n.d.). The refining process turns crude oil into consumable products. There are four primary processes: distillation, cracking, reforming, and blending. Distillation involves vaporizing crude, which then cools in a distillation unit according to weight. The lightest components include gasoline, naphtha and kerosene, while the heavier components include diesel, heavy oil, and crude residue (Production Technology, n.d.). Cracking maximizes the utility of heavy oil and involves breaking long carbon and hydrogen molecules, creating lighter, more valuable liquids. Reforming transforms naphtha into gasoline, thus increasing the gasoline potential of pure oil. Blending involves mixing refinery products with other substances to create market-ready products (Production Technology, n.d.).

III. The majority of Russian hydrocarbons, both refined and unrefined, are exported - more than

70 percent, the majority of which go to China (83.4 million tons) and the EU (138.2 million tons). Central Asia receives 14.8, Southeast Asia 14.1, Japan 5.1, the US 3.7, and India 2.6 million tons respectively (Oilgascanada, n.d.). Piped crude and gas goes primarily to Ukraine, Belarus, Turkmenistan, Uzbekistan, Azerbaijan, Estonia, Hungary, Germany, Kazakhstan, Latvia, Lithuania, Turkey, and China. Eastern European countries frequently continue piping Russian hydrocarbons into Western Europe using their own pipeline infrastructure. Exported crude oil goes primarily to China and the Netherlands, followed by Germany, Korea, Belarus, Italy, Poland, Finland, Japan, and Slovakia (TheRealSengupta, 2021). In each of these countries, hydrocarbons are used in combustion engines, domestic heating systems, and as industrial lubricants, as well as petrochemical products. Some Russian hydrocarbon companies control the entire commodity chain, including distribution networks to consumers. Lukoil, for example, owns gas stations in the Middle East, as well as in Germany, Sicily, and the Balkans. The company also owns gas stations in eleven US states (LUKOIL, n.d.).



(Zachman et al., 2022)

Call to Action

Germany sources half of its natural gas and a third of its oil from Russia, the revenue from which is now funding Russian aggression against Ukraine. It is estimated that Germany supplied Russia close to 9 billion dollars in just the first two months of the war (Wintour). German dependence on Russian oil and gas has been half a century in the making, originating from a deal between West Germany and the USSR in 1970, in which Germany exchanged steel pipes and other industrial products in exchange for Russian gas. Germany helped build a network of pipelines connecting Russian hydrocarbon reserves to German markets, creating the dependency pathway that paralyzed German policymakers at the conflict onset, stymieing national security policy in addition to morality-based sanctions (Wintour, 2022).

On March 8, 2022, the US sanctioned all Russian hydrocarbon imports. However, the Wall Street Journal recently identified a loophole that enabled a Lukoil refinery in Sicily to sell refined crude to the US for distribution in New Jersey and throughout the East Coast (Wall Street Journal, 2022).

The US sanctions failed to address a rule that considers oil that is ‘substantially altered’ in a country different from its country of origin, causing the processing country to become the new country of origin. Hence, Russian oil refined in Italy became Italian oil (Wall Street Journal, 2022).

These two case studies illustrate the consequences of geopolitical dependency pathways and the inherent difficulties of resource sanctioning - both of which are characteristic issues of the hydrocarbon commodity chain. They also demonstrate the impossibility of individual action against Russian oil. The best way to avoid Russian oil is to drive less.-In this way, the real solution to the oil dilemma lies in the radical transformation of urban transportation infrastructure, especially into bike lanes and public transportation systems, followed by cultural conversion in favor of lifestyles consistent with the new urban framework.

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Vanilla in Madagascar

Naomi Alroey

This is the story of vanilla in Madagascar. A story that started in Mexico, pivoted on account of a twelve-year-old enslaved boy, and has impacted the culinary world and the lives of approximately 80,000 farmers in the region of SAVA, Madagascar.

History of Growing Vanilla

Vanilla, a species of orchid that originates from Mexico, is the second most expensive spice in the world, following saffron. The story goes that after centuries of being an exclusive flavor of the Aztecs, Mayans and Totonac, it was brought to Europe by Hernán Cortés, a Spanish conquistador of the 1520s. For two hundred years the vanilla bean was used mostly as an additive to chocolate, until Queen Elizabeth the First tasted vanilla as a separate flavor; since then, it became a popular flavor all over Europe. Mexico was the main producer of vanilla in the world until the 19th century, when vanilla was smuggled into Madagascar. For all these years, the orchid grew with only flowers and no beans; the vanilla beans were imported from Mexico. It took 50 years for the people of the Indian Ocean islands to learn how to pollinate the orchid and grow the bean and not just the blossom. In 1841 Edmond Albius, a twelve-year-old enslaved boy who was a very gifted gardener, learned how to manually pollinate the flower and the window for pollination is extremely short—it must happen the day the flower opens. The boy's enslavers harnessed this knowledge and were able to

commercialize the crop and export it globally. (Abdallah, 2022)

History of Madagascar

Madagascar is an island in the Indian Ocean that has been geographically isolated for some 80 million years. It has a subtropical to tropical maritime climate and developed a unique flora and fauna due to climate and isolation. The first people that populated the island are presumed to have arrived from the archipelago that is now Indonesia, and over the last two thousand years Madagascar has received diverse settlers that created a special fusion culture. Nowadays most of the population in Madagascar are Malagasy, a people and culture created by Austronesian and Bantu settlers. The language that is spoken is Malagasy- an Austronesian language with influences from a multitude of languages. The first Europeans arrived in Madagascar in the 15th century, but Europe only took a serious interest in the island in the beginning of the 19th century. Britain and France competed over the island. Britain introduced Christianity, built a European-style school system, government and infrastructure, but eventually France wrested control over the island. Vanilla beans, one of the symbols of Madagascar, played and continue to play a big role in the country's economy and society. (Wright, 1993)

Vanilla Producing Policies: From Colonial Times to Independence

Prior to the French arriving in Madagascar most of the agricultural production was based on subsistence farming. After the French established authority on Madagascar, the colonial government began exploiting the island's natural resources for economic

benefit. Forests were converted into agricultural land, and the government confiscated fertile land from the Malagasy indigenous population to provide to the new settlers. Out of 900,000 hectares of fertile land, 550,000 hectares was awarded to just six companies, with the rest split between 2,000 Malagasy individuals. Vanilla exports grew from one ton in 1896 to 411 tons in 1925. (Randrup, 2010) The French colonial government in Madagascar allowed vanilla to be grown only in French owned farms and destroyed any plants they found had been smuggled out. In 1960, Madagascar achieved its independence. However, many of the exploitative and restrictive policies remained in place afterwards. In the 1960s a new president established an institute to stabilize the vanilla market, but a few years later, after another administration came to power, corruption led to the collapse of the institute, and vanilla production costs rose. Today the majority of Madagascar's vanilla is produced by small family plantations farming, with the average farmer cultivating just 50 kg of green vanilla per year. There's almost no regulation or oversight, which leads to theft, violence and instability. (Munshi, 2020)

Economics

The price of vanilla in the world fluctuates in boom-and-bust cycles. One of the main issues causing the boom and bust of the vanilla market is the theft of the beans. When production is flourishing and prices are high, the theft of vanilla increases. Those who steal beans do so before they are mature, in order to beat the farmers to the harvest. Farmers sometimes respond to the

threat by harvest their beans even earlier. This cycle causes low quality vanilla to take over the market, causing prices to rapidly decrease. This exacerbates the situation, as the resulting financial distress prompts farmers to harvest their beans even earlier, as they are in dire need of income.

Social Impact

Vanilla is grown in Sava, a region in the north-eastern side of the island, where 70% of the population depends on the spice. The climate in the region suits the vanilla needs with high levels of rainfall and a dry season for the flowers to pollinate. However, vanilla has been negatively affected by climate change. Extreme weather events threaten the crops, and in turn farmers' livelihoods. In 2017, tropical storm Enawo destroyed 30% of the vanilla crop on the island, raising prices from 60\$ to 450\$ per kilogram in four years. Vanilla is in high demand all over the world, but its supply is limited. Damage from natural disasters, such as tropical storms or cyclones, as well as the three-year growth period of the vanilla plant, together contribute to the boom-and-bust nature of the vanilla market. This instability causes much difficulty to farmers. (Andriamahery, A. and Zhou, J. 2018)

Environmental impacts

Deforestation is the most important drivers of biodiversity decline in Madagascar, and the vanilla industry is a major contributor to this land loss. Madagascar lost 20% of its tree cover between 2001 to 2018, and the destruction of Madagascar's forest is especially worrying, as it is home to thousands of species that exist only on the island, notably among them 107 species of

lemurs, a forest-dwelling primate found nowhere else on earth. A third of the lemur species are critically endangered, and the rest are considered threatened, mostly due to deforestation. (Göttingen, 2020)

The Vanilla Industry Ethical Problems

Due to the ethical and health problems in vanilla cultivation a certification system was created to label the vanilla that is grown according to certain guidelines. For example, prohibition of the use of many chemical fertilizers and pesticides. These certifications were meant to ensure fair compensation to farmers, the health of consumer products, and environmental sustainability.

In practice, the majority of the vanilla from Madagascar is organic, even if it is not certified as such. Often the difference between certified organic and “regular” vanilla is nothing more than having access to the funds needed to obtain the certification. Because it is popular among consumers, many exporters view the certifications as an additional cost of production that allows them to compete in the international market.

Consumers in developed countries have become more aware of the various ethical dimensions of imported commodities, but often these same well-meaning consumers accept labels, such as “certified organic” or “certified fair trade” without questioning the authenticity of the certifications. (Campbell, 2018)

Vanilla cultivation is the primary source of income to thousands of families in Madagascar. Precisely because of that, government regulations are needed to ensure

price stability, on one hand, and to preserve the remaining biodiversity that exists on this unique island.

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Cobalt Mining in the Democratic Republic of Congo

Ishaq Rajabi

In the era of electric vehicles, cobalt is the new oil—the key component in electric lithium batteries used by electric cars. As such, the demand for cobalt is increasing as more electric cars are sold.

Introduction to the Democratic Republic of the Congo

The Democratic Republic of Congo (referred to as DRC) is located in Central Africa. The DRC, with a population of 108 million, is the world's most populous Francophone country and the second largest country in Africa after Algeria. It is bordered by Uganda, Rwanda, Burundi, Tanzania, the Central Africa Republic, South Sudan, Zambia and Angola. Furthermore, it has a coastline of 40km on the South Atlantic Ocean. Its capital city Kinshasa is located along the Congo River about 515 km from its mouth and as Central Africa's largest city, serves as the country's administrative, economic, and cultural hub (Cordell, 2022). The DRC is known for its rich minerals, flowing rivers and massive jungles. The country has gone through many conflicts that have shaped the present and the historical content. In order to fully understand this one must consider the history of the DRC and how it came to be today.

Brief History of the Democratic Republic of Congo

Copper has been mined in the DRC since at least the 4th century and Portuguese slave traffickers were aware of the DRC's riches as early as the 16th century. Copper production produces cobalt as a byproduct (Niarchos, 2021).

Belgium's king Leopold claimed the country as his own in 1885 and forcibly exploited it

for rubber, killing up to ten million Congolese (Hochschild, 1995). However, due to local opposition and the inaccessibility of the southern region, large-scale commercial mining in the south did not begin until the twentieth century (Niarchos, 2021).

The Belgian Royal Decree created a mining monopoly (the Union Minière du Haut Katanga), which developed Kolwezi in 1938. Although they did not perpetrate the same horrors as King Leopold, these colonists severely plundered natural resources. They recognized that building infrastructure was necessary to swiftly acquire and move the DRC's mineral resources. The corporation cleared acacia and miombo trees amid Congo's rich mineral reserves and constructed an area for the Europeans to live apart from their Congolese employees. Locals helped create infrastructure and mines, but whites dominated everything (Niarchos, 2021). After gaining its independence in 1960, the Congo became the Democratic Republic of Congo, but Belgium's influence was still very much present. Patrice Lumumba, the first prime minister of the Congo, was assassinated in 1961 by Belgium and the United States. During his reign, Lumumba served as the symbol of Congolese independence. When he was assassinated, the nation descended into instability. In response, several civil wars broke out, but the incoming government was corrupted and unable to aid the Congolese people. This condition is still prevalent today (UN News, n.d; Nzongola-Ntalaja, 2011). Since 1994, when survivors of the Rwandan genocide fled to the eastern Kivu regions, there has been constant conflict in the DRC. Conflict has become more violent as a result of racial tensions, food shortages, corruption, and competition for access to mineral resources. All of that intensified

starvation and deteriorated the economic condition. In the eastern and southern regions, armed groups compete for access to minerals as they utilize revenue from mineral sales to purchase weapons (Mason, 2021).

The Chinese made significant investments in Africa throughout the 1990s, focusing on resource-rich but underdeveloped countries like the DRC. In such countries, "there is corruption, there is a lack of the rule of law which gives you more autonomy to be entrepreneurial," said a Chinese-born financier who has worked on mining deals in the Democratic Republic of the Congo (Niarchos, 2021). In 2007, Joseph Kabila struck an infrastructure contract with China for \$6 billion that contained a clause permitting the Chinese to mine 600,000 tons of cobalt. As result, most of the Cobalt mines in southern Congo are owned by the Chinese and so is most of the supply of Cobalt to world. Eventually, Chinese businesses thrusted to make money by any means, even if it is at the expense of the Congolese people. They also paid bribes to government officials and received government contracts (Niarchos, 2021).

The Dark Side of the DRC and Cobalt

The DRC is home to the world's largest cobalt reserve, an essential element of lithium batteries. However, more than 75% of Congolese people make less than \$2 a day, and the widespread use of child labor in the country's cobalt mining industry has only exacerbated the situation. The DRC has an estimated 40,000 minors working in artisanal cobalt mining, according to Amnesty International, and accidents occasionally happen because of inadequate safety measures. Furthermore, exploitative, abusive, and opportunistic mining businesses with poor salaries frequently take advantage of minors. Due to the DRC's devastated environment and rising living

expenses, the residents are eager to take advantage of any chance to survive. The DRC is home to massive cobalt reserves that researchers estimate contain more than 70% of the world's cobalt supply. (Sethi, 2021; Amnesty International & Afrewatch, n.d.). For years, human rights organizations have documented significant abuses of human rights in the mining industry. These dangers to human rights are particularly serious in the artisanal mines in DRS, a nation devastated by terrible ethnic conflict, Ebola, and a high level of corruption. (Niarchos, 2021).

In some instances, foreign businesses established cobalt processing facilities close to communities, contaminating the soil and farmland, leaving the inhabitants with no option for employment except low-wage labor. When businesses or the government choose to establish a mine nearby or within a community, as happened in Kasulo with the opening of the Congo Dongfang mine, residents of the village may also suffer displacement (Niarchos, 2021).

Health and Environmental Impacts

Cobalt extraction, smelting, and other related industrial activities in the area are harming the environment and people working in the mines or living nearby, according to studies published in The Lancet medical journal and other publications. The health effects are severe, especially for expectant mothers and the infants they give birth to. Exploitative practices can continue because there is no industry supervision. Minors of all ages are exposed to dust and particles that can cause lung and skin conditions like dermatitis and tuberculosis (Williams et al., 2021; Alshantti, 2022). The discharge of waste from the extraction and treatment of cobalt in nature contaminates and pollutes water bodies, air, soil, and marine life. Professor of Public

Health Mwazo Koya conducted a study that collected fish from Tshangalale lake, which is close to mining communities, to assess the effects of cobalt mining. According to the study, the fish were tainted with various harmful elements, such as cobalt, manganese, and uranium. When such contaminated fish are eaten, the radiation released by these metals may cause birth abnormalities (Alshantti, 2022).

Looking Forward: Cobalt Mining Needs Urgent Attention

Cobalt mining needs urgent attention before the electric vehicle boom takes off. Looking more deeply at the situation in the DRC, it is very hard to shut down artisanal and small-scale mining (ASM, n.d.), as these facilities are the only means of survival for the workers. Companies and their shareholders need to establish common ASM standards for mine safety, child labor and fair work conditions for Congolese. Big production companies like Tesla, Apple and others should make sure all workers along the supply chain have safe, ethical work conditions.

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Ivory Trafficking in the Democratic Republic of Congo

Oded Lubin

Introduction: An Overview of the Congo Basin

One of the most significant remaining wilderness areas on Earth is the Congo Basin. Almost 500,000,000 acres, it is the second-largest tropical forest in the world and bigger than the state of Alaska. A patchwork of rivers, forests, savannas, marshes, and flooded forests, the Congo Basin is teeming with life, and stretches into six nations - Cameroon, the Central African Republic, the Democratic Republic of the Congo (DRC), the Republic of the Congo, Equatorial Guinea, and Gabon. The Congo Basin is home to some 10,000 species of tropical plants, 30% of which are exclusive to the area. The dense forests are home to endangered species like lowland and mountain gorillas, forest elephants, bonobos, and chimpanzees. There are a total of 400 animal species, 1,000 bird species, and 700 fish species in the basin (WWF, 2022).

In size, population, and economic activity, the countries in the Congo Basin are very different from one another. The DRC, a full one-half the size of the European Union, is the largest nation in that basin, and contains nearly two thirds of the forest. Nearly 100 million people live in the DRC, which contains nearly two thirds of the basin forest. Societal health and way of life are directly correlated with the health and production of the forest (World Bank Oct 11, 2022).

The DRC is rich in natural resources, such as lumber, coffee, and oil, as well as a wide variety of minerals like diamonds, gold, copper, cobalt, cassiterite (tin ore), and coltan. The Congolese people, however, have hardly benefited from these enormous

resources. Instead, the extraction of resources in the DRC has yielded prolonged conflict, severe human rights violations, and violations of international humanitarian law. The correlation between the exploitation of natural resources and the abrogation of human rights has existed in Africa since colonial times. This relationship was maintained under President Mobutu Sese Seko for three decades (UN Mapping Report, 2003), and has continued ever since.

History of Civil Conflict and Mining

Natural resources are abundant in the DRC. It is home to one of Africa's greatest forest reserves, an abundance of industrial diamonds, cobalt, and copper, as well as roughly half of the continent's hydroelectric potential (World Bank, 2022).

One of the world's poorest nations, the DRC, has a particularly terrible colonial past. Long before it was the known as the Democratic Republic of the Congo, and before it was known as Zaire and even before that as the Belgian Congo, it was known as the Congo Free State (CFS). Despite its name, it was anything but free; in fact, it was King Leopold II of Belgium's own personal colony. Large portions of the CFS were designated by Leopold as concessions to private businesses in which he was the main stakeholder. Extreme violence and the appropriation of local authorities' authority were employed by these private businesses to extract natural resources (Lowes, 2021).

The extraction franchise Leopold II granted had terrible effects on the local inhabitants. Between 1880 and 1920, an estimated 10 million people, or about half of Congo's population back then, perished, mostly through the rubber industry.

The DRC has tremendous economic potential; for instance, it produces about 17% of the world's raw diamonds. 10

percent of the world's copper and 34% of the cobalt are found in the copper belt that extends between Zambia and Katanga. Additionally, 60 to 80 percent of the world's coltan reserves are utilized to make computers, smartphones, and other electronic devices. However, very little of the money made from the exploitation of natural resources has gone toward advancing the nation's overall growth or the living conditions of its citizens. With a life expectancy of no more than 43 years, the DRC rates 167th out of 177 nations in the UN Human Development Index in 2003 (Ugeux & Mbuluku, 2022). With \$767 USD per capita income annually, or just \$2 USD day, on average, a further significant delay to progress was caused by the two Congolese conflicts in 1996 and 1998. On a continent where there are vast deserts like the Sahara and persistent droughts in the dry savannas of the Sahel, deforestation of the rainforest and the lack of rainfall it causes are a serious worry. The potential effects on migration, social and political stability, and food production are unknown (UNESCO, 2004).

Ivory Trafficking in the DRC

Ivory is a tough, white substance made primarily of dentine, one of the physical components of teeth and tusks, that comes from the tusks and teeth of many animals. Regardless of the mammal's species of origin, the chemical nature of its teeth and tusks is the same, however ivory has structures of calcified collagen. Historically it was employed to create products like jewelry, piano keys, chess sets, figurines, and miniature carvings (WWF, 2016).

Some of Africa's most infamous armed groups, such as the Lord's Resistance Army (LRA), M23, ISIS, the Mai Mai, the Shabab, and the Janjaweed, hunt elephants for their tusks, which are then sold to fund weapons purchases. They work together with other

criminal syndicates to transport the ivory around the world, taking advantage of weak governments, porous borders, and corrupt government officials. By discussing its history and current effects on the nation's ecology, politics, and local community, this essay seeks to put the ivory as an element in DRCs protracted history of conflicts into context (Enough Project Report, 2009).

About the Elephant

Elephants are notorious for their intelligence and physical strength. The Greek word "elaph", which means ivory, is the source of the English term "elephant." There are currently only two main subspecies of elephants: African elephants and Asian elephants. The African elephant has two subspecies, while the Asian elephant has three. Both the African and Asian elephants are in danger today. The African elephant is classified as a threatened species under the Endangered Species Act, and the Asian elephant is classified as an endangered species (Bioexplorer, 2022).

Okapi Nature Reserve

The greatest remaining population of forest elephants in the Democratic Republic of the Congo can be found in the Okapi Wildlife Reserve, which is a UNESCO World Heritage site. During the course of domestic conflict from 1995 to 2006, elephant populations decreased by over 50%, largely due to increased poaching, as evidenced by reports of ivory trade during the Congolese war (Somers, 2011).

During the refugee crisis that followed the 1994 genocide in Rwanda, displaced peoples migrating to the DRC caused a significant loss of habitat, leading to the loss of some 300 square kilometers of forest. In addition, populations of elephants were drastically reduced by armed militias that fought for control of easily harvestable natural resources. Ivory and bush meat were key

resources, and African elephants were the most important of all the species hunted. Undercover investigations show that 6.5 tons of ivory left the reserve in 2002, and 14.3 tons were reportedly removed in 2004 (Beyers, 2011).

Demand for Ivory in the DRC and the Role of Armed Militias

Over the years, fighting in the DRC caused a great deal of lawlessness. Governmental organizations were disassembled or positioned to promote illegal resource extraction and taxation (such as the national police and military). Attacks and harassment were directed at organizations like the National Parks Service, whose mission is to protect and manage natural resources. As a result, the war had a significant impact on the collapse of wildlife conservation and enforcement. Many staff members were murdered both while carrying out daily tasks or when they left safe zones. Meanwhile, hunting increased. Protected regions were occupied by the military and militia. Elephants were killed for meat and ivory, used to feed rebels or the military or to be sold, the proceeds of which could expand resource takeover (Beyers, 2011).

Businesspeople, ivory dealers, and journalists provided intelligence that showed ivory from the northeastern DRC shipped to Uganda and the Central African Republic. Businessmen and rebel commanders were also charged with trafficking. For the illegal domestic and international ivory markets in Africa, hunters estimated that roughly 4000 elephants were required annually. The majority of this ivory was thought to have originated in Central Africa, particularly the eastern DRC (Beyers, 2011).

Ivory trafficking in the DRC was intimately linked to other criminal networks, particularly those engaged in the trafficking of weapons. By having connections to these

networks, those who violated human rights in the DRC were able to easily smuggle natural resources out of the nation and use the revenues to buy weapons and commit additional human rights violations.

The sale of ivory on the black market, access to arms dealers, and involvement in the criminal underworld have elevated militias and terrorist organizations to the highest ranks of the DRC's social structure (UN, 2022).

Ivory Trafficking Impacts

Social Point of View

The immense natural resources in central Africa are a major source of income for most countries in the region. And yet, 80% of people in the region live in poverty on average, while 84% of people are unemployed. Ivory is a "conflict resource" in that its value contributes to the perpetuation of war in the area (Sep 23, 2022 World Bank). Disease outbreaks are frequent due to insufficient infrastructure and surveillance, and people have limited access to healthcare. Millions have been displaced as a result of violence that has caused crises in the Kivus, Tanganyika, and Kasai areas. Access to schools is still difficult for children living in conflict zones. Over 74,000 instances of sexual violence were reported between January and September 2021 alone, with women and girls making up 94% of those incidents. The scarcity of food is a critical issue, and because most households lack access to occupied land, the ability to cultivate their own food, and a reliable source of income, they rely on humanitarian aid to survive (UNICEF, 2017).

Environmental Point of View

In the Democratic Republic of the Congo, environmental challenges are a result of social and economic issues, such as a lack of

access to clean energy, the clearing of land for economic development and agriculture, and armed warfare.

Much of the biodiversity is under threat because of the civil conflict and poor economic conditions that have resulted. Many park rangers were killed in the line of duty (park rangers finance themselves?). The UNESCO has recognized the five national parks—Garumba, Kahuzi-Biega, Salonga, and Virunga National Parks—as well as the Okapi Wildlife Reserve as World Heritage Sites in Danger (UN, 2017)

Deforestation, poaching (which of course reduces wildlife populations), water pollution, and mining are among the environmental problems of the DRC. Refugees who have been forced to relocate are the main source of deforestation, soil erosion, and wildlife poaching. The DRCs population, the majority of whom are directly dependent on natural resources for their livelihood, and the intense global demand for raw materials are adding to the pressures on natural resource extraction.

Political Point of View

Political brutality and violence have a long history in the DRC, and their basic causes are complicated. The persistence of conflict and insecurity to this day is due to several factors, including political and economic marginalization, weak institutions, an abundance of natural resources, the presence of small arms, and uncontrollable borders. Together, the Democratic Republic of the Congo and its neighbors' instability is often characterized by the rise in cross-border violence and the use of borders as havens for militants, training grounds for recruits, and hubs for illegal trafficking. (CFR, 2022)

Regional and transnational transportation networks enable the circulation of commodities and increase the

“exploitability” of ivory. In conjunction with the increasing Chinese investment and human presence on the continent, this has served to decrease the distance between sources of supply and demand, and providing poachers – including armed groups – with a reliable source of revenue in exchange for their prizes (Aidi, 2021).

What's Next?

Even though the trade in elephant ivory is prohibited, the DRC's ivory industry thrived until fairly recently. Several markets, the most well-known of which is Bikeko, are located in the heart of the city across from the government building. Years of silent toleration of the illegal ivory trade allowed traders to defy the law in broad daylight without concern for prosecution. Increased law enforcement and arrests has led to a decrease in ivory trafficking since 2015 (Mwatha, 2017).

As the problem of wildlife crime is widespread and takes on varied forms, the involvement of both national and international actors is indispensable. At the national level, the focus will be on bringing together the government sectors that have the tools and the necessary means to combat wildlife and resource-related crimes. The plan (unclear: does such a plan exist or is this a proposal?) should establish a national and regional mechanism for coordinating and exchanging information among the principal government departments, agencies and institutions tasked with fighting the illegal trafficking of endangered species and ivory from elephant tusks (UE, 2022).

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Cocoa Beans in the Ivory Coast

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Introduction: An Overview of the Ivory Coast

Ivory Coast (Côte d'Ivoire) is a country located on the southern coast of West Africa. Its capital is Yamoussoukro, and its largest city and economic center is the port city of Abidjan. (Appiah. et al, 2010).

The Ivory Coast was reached by Portuguese explorers in the 1460s, and the area became a center for the slave and ivory trade (hence its name). In 1842 France took over, ruling the country until Côte d'Ivoire gained full independence in 1960 and joined the French Commonwealth of Nations. The Ivory Coast maintained close relations with France, helping it attract foreign investments directed to the development of cocoa beans— helping it to become one of the wealthiest countries in Africa.

Unfortunately, in the ensuing decades the Ivory Coast became ensnared in problems well-known to many developing countries: Revolutions, bloodshed, civil war, and political chaos (Appiah. et al, 2010; Esnault, 2021).

Nevertheless, the Ivory Coast today leads the world in the production and export of the cocoa beans used in the manufacture of chocolate, supplying 38% of cocoa produced in the world as of 2012. West Africa collectively supplies two-thirds of the world's cocoa crop, with Ivory Coast leading production at 1.8 million tons as of 2017, and nearby Ghana, Nigeria, Cameroon and Togo each producing an additional 1.55 million tons (Appiah. et al, 2010).

Ivory Coast Economy

The country's economy is based on agricultural and agricultural production sectors, which provide employment to around 70% of the population. In addition to growing cocoa beans, The Ivory Coast is a

significant exporter of coffee, bananas, and palm oil, yet by far its most important export is cocoa beans, accounting for 40% of the national export income. The country's main export market is Europe, at 44%, while other African countries import 29% of local produce, and Asia another 13%. The financial dependence on exports is very high; exports provide 51% of GDP. Most of the cacao exporters from the Ivory Coast are subsidiaries of large international companies such as Cadbury, Hershey's, and Nestle (Bavier, 2021).

Cocoa in the World

Humans have been growing cocoa beans for over 3,000 years; The Mayans in America used cocoa beans as a payment measure and invented the cocoa drink. The Spanish Conquistadors brought cocoa to Europeans, who turned the cocoa into a sweet drink by adding milk and sugar. In the 19th century, John Cadbury (founder of Cadbury, a leading candy company) invented the lotion-making process that allowed solid chocolate to be produced. The main ingredient in chocolate production was cocoa beans (Wood. et al, 2008). A wide range of consumer products are made from cocoa and its derivatives: processed foods, beverages, pharmaceuticals and cosmetics.

Cocoa Harvesting in the Ivory Coast

The Ivory Coast is the world's largest exporter of cocoa beans. In 2009, cocoa-bean farmers earned \$2.53 billion for cocoa exports and were projected to produce 630,000 metric tons in 2013.

Almost six million people make a living from this industry in the Ivory Coast - most of which are not involved in the process of turning the crunchy and bitter beans into candy, engaging solely in the cultivation and sale of cocoa beans intended for export to Europe. Thus, they do not receive much of the profits generated by the country's

lucrative chocolate industry, as most money flows to larger foreign manufacturers and not to the local farmers. Although the Ivory Coast grows about 45% of the world's cocoa beans, it receives only about 7% of the global income produced by this commodity (New York Times, 2022).

The large cocoa pods that contain the cocoa beans are hacked open using clubs or machetes. The beans are then cleaned, dried, and allowed to ferment. They are then packaged to be shipped to processing plants all around the world. The work is done manually because it's too complex to be done by machines. The price for half a pound of cocoa on the Ivory Coast has declined from 70 to 56 cents (New York Times, 2022). There are 5 million to 6 million cocoa farmers who rely on cocoa beans as their main source of income. They experience poverty and hard manual labor. Cocoa farmers work hard and live in poverty, most of them have no idea what the beans are used for, so much so that they have never tasted chocolate (Ohio University, 2021).

Issues

Cocoa production in West Africa has long been associated with human rights violations, deep-rooted poverty, low wages and child labor, and even forced labor. The low prices offered to small farmers leads them to pull their children from school and help with farming, as the low income they earn from their crop makes hiring farmhands prohibitively expensive. This results in a cycle of uneducated, poverty-stricken families (Ohio University, 2021).

The most salient issues in cocoa supply chains include the use of child labor and the expansion of cocoa production into protected forest reserves. Climate change also threatens the future viability of cocoa

production due to the predicted increase in the prevalence of droughts, pests and disease.

Cocoa Harvesting Impact

Environmental

The growing demand for chocolate speeds deforestation for growing cocoa trees. First, the tropical rainforests where cocoa crops thrive are also some of the most biodiverse areas in the world, providing critical habitat for many endangered and endemic species. In 2015, less than half of the protected areas surveyed in this country still contained any of its 22 primate species, and seven out of the 23 areas surveyed had been converted almost entirely into cocoa production. Recent research supports these processes. Meanwhile, scientists concur that preserving biodiversity and related ecosystem services is vital to limiting the average global temperature rise to 1.5°C (Barima. et al, 2016; Yao. et al, 2020).

Roughly 90% of West Africa's primary forests have been destroyed, stripping away habitat for elephants and other species, and in some places, herbicides and pesticides have lastingly tainted the soil. In the Ivory Coast, around a quarter of forest loss since 1970- is tied to the expansion of cocoa production. (Barima et al. ,2016).

In November 2017, twenty cocoa producers in Ivory Coast and Ghana pledged to stop clearing forests to plant more cocoa trees in West Africa. Since then, other producers have joined the pledge, committing to produce chocolate only from surfaces that do not damage natural forests. Unfortunately, despite the promises, the destruction of forests has continued. Farmers have been documented clearing forests to plant cocoa and are able to sell their

products without any repercussions (Rozental, 2018).

Social

Two-thirds of African cocoa farmers earn less than a dollar per day, well below the World Bank's \$1.90 per day extreme poverty line, earning As mentioned, a tiny percentage (approximately 6.6%) of the value of a chocolate bar goes to farmers, while most of the profits from go to manufacturers (35%), retailers (44%), and the remaining 14% goes to grinders, processors, taxes, marketing, transportation and traders (Raghava & Sudarsan, 2001).

Approximately 2 million children work on cocoa farms in Cote d'Ivoire and Ghana. Although almost all (99%) of these children work on their families' cocoa farms, while the remaining 1% are often migrants, trafficked from neighboring countries like Burkina Faso or Mali. In 2013, the U.S. Department of Labor's report on child labor in Côte d'Ivoire stated that 39.8% of children aged 5 to 14 are working children. Children working in cocoa production are exposed to dangerous work, such as applying harmful pesticides, lifting heavy loads, burning fields, and wielding sharp tools for splitting cocoa beans (Raghava & Sudarsan, 2001).

Cocoa production experiences boom and bust cycles. During the boom, excessive income generated from cocoa production encourages additional investment, and during the bust, income declines and as a result, so does the demand for the factors of production- land and labor. Historically, the bust periods contribute to increased political tension along class, ethnic and regional lines (Custers, 2005).

Ivory Coast is home to 65 different ethnic groups, and after independence was

achieved in 1960, Millions of foreigners and Ivorians from other parts of the country moved to the country's lush southwest region, setting up the hundreds of thousands of small cocoa farms which form the backbone of the economy. Frequent changes to Ivory Coast's land laws have caused uncertainty and instability; as a result, this area faces frequent fighting between the settler community of Yaokro and the indigenous villagers from Briéhoua over cocoa-rich land (Balint-Kurti, 2005; Custers, 2005).

The majority of cocoa producers have precarious legal claims over their lands. Due to the insecurity they feel about their land holdings, farmers often don't make long-term investments, instead relying on manual labor and primitive technology (Balint Kurti, 2005; Raghava & Sudarsan, 2001).

Political

A recent UN report pointed out that money from regular state taxes on cocoa production is quietly funneled towards the purchase of foreign arms. The considerable tax levied on cocoa production has led to substantial amounts of cocoa being smuggled abroad, estimated to be up to 2,000,000 tons annually. The liberalization of Ivory Coast's domestic and international cocoa trade – far from having helped to solve the country's crisis, instead has worsened it. For example, the civil war besetting Ivory Coast today was preceded by the weakening of the state under the impact of structural adjustment programs implemented at the behest of the WB and the IMF. However, there exists a second interconnection between globalization and the civil war, namely, in the shape of the new type of international trade that has arisen as a part of the civil war (Custers, 2006).

Some sufficient evidence indicates that the war in the west African country is very closely related to the processes of

globalization. In 2005 the major international financial institutions (WB and IMF) continued to tirelessly propagate liberalization and privatization- as part of the program elaborated as the so-called “Washington consensus”. Yet precisely these policies have severely weakened African states, a striking case being the dismantlement of the Caisse in 1999. This dismantlement constituted a close precursor to the eruption of Ivory Coast’s civil war (Custers, 2006).

Economic

The Ivory Coast was an example of successful post-colonial development for many years, based largely on the expanded cultivation of a single agricultural crop- cocoa beans. In the late 1990s, the World Bank and the International Monetary Fund imposed structural adjustment programs on the country. Later, the fall in cocoa prices at the farm level, as well as the preponderance of cocoa being smuggled to avoid paying taxes, transformed cocoa into an export product used to finance military campaigns (Woods, 2008).

The golden age of cocoa production was in the second half of the 1970s when the international price of cocoa reached a historic peak. In 1977, the price stood at £ 3,500 per ton. Like many other raw materials, the cocoa price rise was connected to the dramatic price increase in crude oil instituted effected by OPEC in 1973. However, the elevated cocoa prices were fleeting; by 1989-90, the price was only £ 670-770, a quarter of its 1977 price. Ivory Coast’s dependence on such an inexpensive resource as a primary agricultural export crop has had major negative implications on the country’s international position ever since. Although the country had incurred some foreign debts in the mid-1970s, the problem of external

indebtedness increased rapidly after the country’s fiscal monetary crisis of the early 1980s.

World Criticism

Many Western consumers publicly denounce the working conditions in cocoa plantations, but buy chocolate from multinational companies nevertheless, because they do not want to pay more for fair trade chocolate companies.

A report named "A Taste of Slavery" claims that traffickers promise paid work, housing, and education to children who are then forced to labor and undergo severe abuse, that some children are held forcibly on farms and work up to 100 hours per week, and that attempted escapees are beaten (Rozenal, 2018).

Today, not a single company or government is anywhere near reaching the sector-wide objective (as determined by the International Cocoa Initiative?) of the elimination of child labor, and not even near their commitments of a 70% reduction of child labor. The Child Labor Monitoring and Remediation Systems implemented by the International Cocoa Initiative and its partners have been useful, but they are currently reaching less than 20 percent of the over two million children impacted (Rozenal, 2018).

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