

The Guilty Pleasure

How cocoa production is driving deforestation in Ivory Coast?

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Introduction

“There is nothing better than a friend, unless it is a friend with chocolate.”

— **Linda Grayson**

In the past century, with developed machinery the word “chocolate” has expanded to include a range of affordable treats for everyone. European and American countries are the main customers in the chocolate market, growing along with the household's average income level, the chocolate industry is expanding steadily. In 2019 U.S. chocolate confectionery sales reached \$25 billion which is a 47.48% increase from 2009. Meanwhile rapid urbanization has raised a growing middle class in asian continent, changing consumer tastes have triggered an increasing appetite for chocolate. (India's demand for chocolate is booming – almost 230,000 tonnes were consumed in 2016, a 50% increase from 2011.)

The nutritional contents and ingredients of chocolate may vary by type. While many are interchangeable, there's one ingredient we can't make chocolate without: cocoa beans. Dark chocolate contains 30~90% cocoa content on average, milk or white chocolate contains less than 10%. On the other hand, the health benefits of consuming chocolate has never failed to be the central debate among nutritionists and news articles. With the growing awareness of the synthetic ingredients, most health-conscious consumers have turned their preferences towards premium organic chocolate or dark chocolate which is perceived as a healthier choice among all types.

However, chocolate is “a guilty pleasure” not only because of its debatable effect on human body, but also the “unnoticeable” aftereffects on the forest and its conflicting role toward local economy. As its irreplaceable ingredients, cocoa has almost tripled its supply quantity in the past 38 years (from 1981 to 2019). In contrast to how much we love our chocolate, very little we are aware about where these cocoa beans came from and what's the environmental toll behind it? How many forests are we sacrificing in order to make land for extra cocoa harvest?

The purpose of this project is to explore and visualize the actual bittersweet “prices” we've paid for each pound of chocolate. Stating clear about the challenges that cocoa cultivation is facing includes global warming. Zooming in on Ivory Coast's economical status and geographical resources, where 60% of our cocoa beans came from. Discussing the cocoa plantation's conflicting role on local economy and environment. In 2019, Côte d'Ivoire's growth stood at 7.5%, driven by higher cocoa revenues and greater social expenditures. Meanwhile, it has lost 2.78Mha of tree cover, equivalent to a 19% decrease in tree cover since 2000, and 730Mt of CO₂ emissions. Through analyzing the factors that may induce deforestation and each probability, we may see the correlation between cocoa farming and forest disappearance. Additionally, the study will also include what are some alternative decisions that can be made at each stage of cocoa plantation, for example the difference between monoculture and agroforestry, introduction of a possible quota or trading cap etc.

The implication of this project isn't opposed to the regular consumption of cocoa or trying to start an anti-chocolate movement. Humans have started to consume cocoa thousands of years ago therefore cocoa bean itself isn't evil, how we obtain it and consume it without limits, that's the guilty part. In fact this project emphasizes on addressing the importance and urgency of building a sustainable cocoa supply chain. Customers shouldn't be kept from unethical cocoa sources with its aftereffects attached, because in the end we are the one who is going to pay the "price". In order to explain these contents more thoroughly and instead of offering a subjective opinion, this visualization adopts a scrolly-telling structure, allows users to dive into different datasets at their own paces. Target audiences are not limited to people who have a sweet tooth like me, but also hopefully would raise consciousness among a wider range of individuals.