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Côte d'Ivoire, Factor 6: Sustainable Agriculture

### **Food Insecurity in the West-African Country; Cote d'Ivoire:**

Côte d'Ivoire, an arid country located on the coast of West Africa, with a population of about 26.38 million people (Countrymeters.info, *Cote d'Ivoire population* 2022). It is bordered on its sides by Liberia, Guinea, and Ghana. Mali and Burkina Faso are located right above it. It is in between the Northern and Western hemispheres, with dry, tropical conditions in the North and humid equatorial conditions in the South. The country's rainy season lasts typically between the June and October months, their average temperatures ranging from 24-28 °C. Throughout this country's history, it has experienced many triumphs and defeats. In its triumphs, it gained its independence from France in 1960, and became its own country, continuing to maintain close ties with the French. During those years, before and mainly after its established independence, Côte d'Ivoire was the leading country in cocoa production, establishing and strengthening its economy. Along with its growing economy after their independence, the country entered arguably its greatest time in the 1960s, when the first African minister to the European government became the first president; Félix Houphouët-Boigny. During his time, the country had strong relations with the French, and their cocoa exportation was at its most prosperous, generating 40% of the world's cocoa. Unfortunately, the success of the country did not last, and it experienced a series of struggles within its government. The country has fought with unrest, shifts in power, and damage wrought by its first military coup, and only continued with the second. After many years of struggle, when things were beginning to settle, the economic crises of 2012 hit, and trouble once again appeared for Côte d'Ivoire. As the country primarily relied on its exports of cocoa and coffee, when the economy crashed, the country was hit hard. Tons of cocoa beans were left unsold, the country received very little money, leaving people, especially those in the poor-er and farming districts, to suffer. Many of the farmers were and still are living below the average poverty line, constantly working with the plants, hardly having time for other things in their lives like education. The people had little to no use for the beans, leaving them to rot. Ever since the collapse, the country has been rebuilding itself and its economy. Côte d'Ivoire was the fastest-growing African country, and it is on its way back.

The country Côte d'Ivoire is a country whose main income is from agricultural exports, mainly cocoa, followed by coffee. The country generates about 2 million tons of cocoa beans every year, 40% of the world's total cocoa beans. Behind all this cocoa are the farmers who produce and harvest the beans. Côte d'Ivoire is a country with about 26.38 million people, 25% of them, 6 million, are cocoa farmers. An average cocoa farming family can have about 4 children, or even more, (The New Queens Of Cocoa, n.d.) and depending on the number of wives the husband may have, families can reach from having 8-11 people, or be even larger. Typically, every member of the family has some role in growing and producing cocoa. The men of the family will usually be the ones planting, growing, and caring for the health of the cocoa beans, while the women will go through the arduous process of harvesting them. They will also oversee the fermenting process of the beans and dry them before the men bring the sacs of cocoa beans to the buyer(s) (The New Queens Of Cocoa, n.d.). As chocolate is a worldwide delicacy, one would believe that the conditions of those creating the cocoa to be stable. But that is not the case.

The majority of cocoa farmers live far below the U.S poverty line, being \$1.37, the farmers earn only \$0.78 to \$0.92 a day, per person. Based on studies done by Fairtrade, the income of farmers has increased in recent years. Their analyses reveal that in the years 2016/17, their annual family income was at \$2,670, and then increased in 2020/21 to about \$4,937. Although this increase is good news, it is still not enough. Many families continue to remain below the poverty line, with little access to education, healthcare, and

with one in five families not having access to drinkable water (Ivory Coast, Action Against Hunger, 2020).

While Côte d'Ivoire has made some advances in its education system, the quality still needs improvements and the leading problem for access to that education lies in the work: Many children have no time to attend school as they are busy working with their parents tending to the cocoa, or they are being used for child labor, a major problem in Côte d'Ivoire. The Bureau of International Affairs (ILAB) (Sadhu, norc.org, 2018-19) with the U.S Department of Labor had the NORC (National Opinion Research Center at Chicago University) conduct a survey to represent how many children from ages 5-17 living in agricultural homes in cocoa-growing areas in Cote D'Ivoire worked during the 2018-19 harvest season. The data showed that 38% of children in Côte d'Ivoire were engaged in child labor and that 37% were engaged in hazardous child labor. With little money -as many live below the poverty line- and little time, many cannot afford to get a quality education or go further than 6th-grade level math and language education (*Cocoa, Côte d'Ivoire, and children's education: What you should know this Valentine's Day*, n.d.). Over 1 million children, some as young as 5, are working in the cocoa farming industry. According to UNICEF, in Côte d'Ivoire, four in 10 children at primary school age are out of school, while less than half of young people aged 15-24 are literate. According to another study done by the Agence Française Développement in 2014-15 (AFD) (Gaelle Balineau), around 30% of farmers are literate, and 60% never attended school, and the remaining 40% mostly attended only primary school and the last remaining 10% of all the cocoa farmers surveyed went a level beyond primary school.

Continuing with their access to healthcare, many villages are reported to be lacking in healthcare facilities and/or healthcare workers. Based on a study done in 2014-15, only 43% of observed communities reported that they have some sort of health care facility in their village. Including other health care facilities, -within 5km of the village were included- about 47% recorded having reasonable access. For the remaining 53% communities, their closest health care facility is located further than 5km, averaging distance of 12km. The access to healthcare facilities in these communities is observed to be extremely low and based on the ENV 2015 research, an estimated amount of 70% of households have a health center within 5km of their homes, even when they are very poor households. Within the communities with access to the centers, 55% said they have a community clinic, 41% have a maternity clinic, 45% have an infirmary, 26% have a private clinic, and about only 15% have a hospital (Gaelle Balineau, April 9th, 2018).

All people depend on food, as their income largely goes for food. Like many other countries in Africa, Ivorians are largely self-sufficient on crops like maize, cassava, plantains, and yams. They will also occasionally rely on rice, but as rising rice prices continue, they will turn back to attempting to grow their own rice and sell the rice as well to earn more money to survive. The general rising prices of food like rice is causing families to have to adapt, because even as the prices rise, the farmers are not paid more. This is requiring them to change their eating habits and to plant more crops to sell, simply to sustain themselves. While on the surface it appears that they do have access to food, it is a diet that largely consists of starch-based foods, meaning that many do not have a variety of nutritious foods. This connects to sustainable agriculture, because so many of the people's income relies on their crops, primarily the cocoa beans. By having better means to grow and harvest the plants, this would bring the people more money to afford all the supplies they need.

Following how the families and diets of the farmers are constructed, now comes what the actual farms themselves are like. Based on the research done by the AFD, about 90% of cocoa farmers have one plot, averaging at about 4.31 hectares. The areas declared by the farmers are statistically higher, as the average declared plot size can reach 6 hectares, though the median remains at 3 hectares. The average size of cocoa farms was measured at 4.87 hectares. Apart from just growing cocoa, Ivorians grow other cash crops such as coffee, oil palm, coconut, rubber tree, cotton, sugar cane, pineapple, mango, papaya, and

cashew. The main food crops are maize, yams, plantains, cassava, bananas, soybean, peanut, taro, millet, sorghum, and vegetables. These are different from cocoa beans, as farmers do not keep and eat the beans for themselves, while with the others they do. Therefore, cocoa beans are not considered a main *food* crop. The average farm size in the south is 10-13 hectares, including the forests and fallow land. Other food crops like maize, rice, yams, and cotton are the main crops in the savannah region to the north, those farms averaging at 3.5 hectares (LandLinks, n.d.). Some farms in Côte d'Ivoire may also have poultry, cattle, sheep, and/or goats on their farm to produce eggs, milk/meat, and wool, for their own families to eat and use, as well as supplemented income. As there are many different crops that Ivorians can produce, over the years as they have refined their farming, they have developed practices to better increase their crop yield. The basic good practices to utilize are pruning, weeding, sanitary harvest, and crop protection products, as well as managing the soil fertility and rejuvenating plots when one harvest is finished. Many of the basic practices are done to keep the harvest healthy.

However, the fertilizer and soil management protection need improvement, though the main reason many farmers say they do not do it, is because of financial difficulties: Many cannot afford to buy expensive items like chemical fertilizers, as only about 18% of farmers had a bank account back then when the research was conducted (Gaelle Balineau). Many farmers choose not to use these methods, as they believe things like chemical fertilizers and pesticides would damage the crops and the soil. On the other hand, about 30% of farmers had started to rejuvenate their crops, which would allow for new, potentially healthier crops to start growing.

Throughout this research, many barriers for the families in Côte d'Ivoire became apparent. First and foremost, the first problem that appears when researching cocoa production is money. Millions of people in Côte d'Ivoire are farmers of cocoa and practically every single one of them are living far below the poverty line. The system of buying and selling cocoa is the cause of this. Of all those involved in the process of turning the cocoa beans into chocolate, it is the producers who suffer the most, being left out of the money they so rightfully deserve. While the farmers are the producers of the cocoa, the market is elsewhere. The actual producers of cocoa receive around 6% of the total revenue from the cocoa, while branded manufactures take 44% and retailers take 35%. The price wars that take place in supermarkets worldwide do not impact all members of the cocoa chain equally (*From bean to bar in Ivory Coast, a country built on Cocoa*, n.d.). Markets and brands will take certain portions of cocoa to be turned into chocolate; if the farmers harvest more than what brands need, then there is an extra abundance of cocoa that will sit around and rot, wasting time and effort of the farmers, while also losing them the much-needed income. As well as there being issues with the food market, farmers also struggle with the food production barrier. Growing cocoa is no small feat, as it requires certain conditions to grow in. The farmers must also spend 5-6 months caring for the cocoa trees, checking them for harmful pests and diseases, and keeping the trees well maintained. The harvesting process also takes time, many trees are needed to produce an adequate number of cocoa beans, -about 400 beans are needed to make one pound of chocolate, and one tree produces 20-40 pods-, though pods can be sick or infested, which can lead to the loss of the valuable beans. Finally, the beans need to be fermented and dried before they may be sold. The entire process is labor-intensive, and much can go wrong in the span of that time. If one tree becomes sick and is not properly taken care of, entire plots of the trees may be wiped out. And because cocoa trees and the plots to grow cocoa are so large, much of the natural land in Côte d'Ivoire is being destroyed. The farmers depend so heavily on the amount of cocoa that they can sell, as such, they grow large plots to harvest and sell as much as possible. As a result, much of the forest land is being razed to make room, and some even become so desperate that wildlife reserves are broken into to grow extra cocoa. This greatly reduces the amount of biodiversity and hurts the land. All these challenges and barriers aren't just affecting the farmer's production, but also their very livelihoods and their land.

Sustainable Agriculture is the best factor when examining food security in Côte d'Ivoire. In the last few years, while Côte d'Ivoire still has struggles with education and financing, there is clear improvement. Over the years, more companies and federations have come forward to try to help the people of Côte d'Ivoire and to adapt their systems to make things more equal. Corporations like Fairtrade, Nestle, and Hershey; have made moves and promises, Nestle and Hershey having previously stated that they would make attempts to end or fix the child labor claimed to have occurred in their businesses. (*From bean to bar in Ivory Coast, a country built on Cocoa*, n.d.). As more and more people are becoming aware of the dilemma happening in Côte d'Ivoire, action is being taken to try to help the people, like companies investigating the source(s) of their chocolate. Action Against Hunger improved nutrition care in 17 different health centers. Businesses with slavery-free chocolate starting to pop up and become more known in stores, for example, Tony's Chocoloney. As a result of efforts such as these, the trend of this factor is continuing to slowly improve.

To maintain the movement towards Sustainable Agriculture, a few methods could be implemented or improved upon to help make harvests more effective and successful. One issue, like soil erosion caused by run-off, could be dealt with by planting more grass around plots, between trees, or simply throughout the land. Planting short grass, with its shallow roots, would help to stabilize the land, holding it together, creating a denser, stronger layer of topsoil. This would allow the soil to be able to better support larger plants, like cocoa trees. Planting species like Mission and Molasses short grass would be most beneficial, as they would be able to survive in those conditions, and they would be better suited to bring back the nutrients needed. Species of grass, like the previously mentioned, would be best, and the planting of perennials, native to the country, -for example like skyflowers and the Asian spiderflower- would also help ("Wild and Naturalised Plants of Côte D'Ivoire). The root systems of the vegetation would be able to strengthen the soil, bringing to it more variety which would help in protecting the plants from getting diseased and infected. Another method that is becoming more known would be plot rejuvenation. Right now, about 30% of farmers know of and have started to rejuvenate their plots after harvests. Rejuvenating the plots tosses up and infuses the soil with more diverse and organic matter. It would allow the soil underneath the top layer to house some vegetation; giving the original topsoil layer a break to gather more organic nutrients from the ground and allow the new top layer to use all the nutrients it had gathered up before to feed new vegetation that will be planted. By rotating the soil between harvests, the soil's biodiversity is increased, more organic matter is taken in, leading to stronger, healthier soil that could better withstand changes in climate and erosion, as well as helping the plants. These methods could be implemented through education; people with knowledge on these methods could be paid by the Ivorian government for instance. They would talk and teach the people and farmers more about these methods; how they work, how they increase/improve soil and in turn, crop health and yield. Through communication and education, more farmers could be made aware of those different techniques and how they work and would benefit their crop plots and in turn the crop yield. Other organizations besides the Ivorian government could help make this happen, organizations similar to the Red Cross, where people travel to developing countries to teach the people on ways to improve. They are simple methods, but unfortunately, not many know of these methods or realize how they would be of great benefit to the plants.

With all its barriers and challenges, the best thing to help the people of Côte d'Ivoire is Sustainable Agriculture. For farmers, many barriers they face are financial struggles, growing their crops, and education, not just in the traditional sense, but also in the best practices for agriculture and sustainability. Many farmers are poor, living below the poverty line, they must always work and grow their crops to make the money they need to survive, leaving little or no time for school, and growing new plants as soon as possible once a harvest is done, not giving soil time to rest and gather more nutrients to

sustain healthy plants. However, work could be done to better help farmers. For one, if they knew of and implemented certain methods to help and support the soil and plants, harvests could be more healthy and even more bountiful. That is where education must be brought in. Through volunteers or support from the government, farmers could be taught by others with knowledge on how to help rejuvenate their soil and plants more effectively. If more farmers were made aware of the process and the effectiveness of these methods, they could have healthier, more resilient crops, that could allow farmers to worry less about constantly keeping an eye on the crops and give them the opportunity to use their time elsewhere, such as going to school, pursuing further education. As well as the crops becoming stronger, they could have increased yields, and in turn, provide the farmers with a little more money. The financial problems are something that could also be improved by changing the system, to make things more equitable for every person involved in the cocoa chain. Teach the farmers methods to better care for their crops, the crops become stronger, healthier, and more productive. Stronger crops don't require as much constant attention, leaving the farmers with more time that could be spent elsewhere, including learning more about sustainable agriculture. Thus, leading to the continuation of the cycle. More crops lead to more money, which leaves more support for the farmers and their families.

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