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Liberia, Factor 12: Human Diseases

### **Liberia: Ending Ebola and Reinvigorating the Agricultural Economy**

Liberia, a steadily urbanizing country, is severely lacking proper nourishment for its people after a devastating civil war and the recent Ebola outbreak. After farmers were displaced and expansive land was deserted during the fighting, a hungry nation was left in need of satiation. The war came to an end in 2003 as oppressive former president Charles Taylor was removed from power due to pressure from rebel groups and international forces, most notably the United Nations' (UN) Peacekeepers. As of 2005, a new, elected government has been put into place, and the country has attempted economic recovery with outside help; in particular, the United Nations' lifting of the sanctions against Liberia's timber and diamond exports ("Liberia Overview"). In a disastrous turn of events, 2014 saw the outbreak of the highly contagious and equally lethal Ebola Virus, which infected 10,672 Liberians and killed 4,808 (Mazumdar). This toll carried great consequences for the country's agricultural industries. In short, Liberia is a country in dire need of security and regrowth. At least 63.7% of its people live below the poverty line and even more live without adequate nourishment ("Liberia Data"). While world leaders can justifiably tend to their own domestic problems, they must first ensure this beaten nation's future prospects in order to prevent another disastrous outbreak of Ebola. With the all too prevalent issues of environmental degradation and bushmeat consumption causing interspecies transmission of the virus, it is crucial that the UN expands its reach within Liberia to environmentally mitigate Ebola's root causes. Additionally, the UN must arrange a parallel program which more directly aids the country's crop production and incentivizes deliberate agricultural industrialization over blind urbanization by providing sufficient tools, training, and seeds. Ensuring a disease-free future with a larger, more effective rural population will yield an agricultural powerhouse that exceeds even Liberia's pre-war standards.

Even though nearly half of Liberians live in cities, mostly in Monrovia (the capital), the country's primary source of food is still rural agriculture. With cities seeing 3.43% annual population growth since 2010, Liberia's urbanization is coming at precisely the worst time, just as farmers are needed most (Sifferlin). Nonetheless, there is still a significant proportion of people living on farms, whether for sustenance and local distribution of food crops or to grow cash crops like rubber and cocoa. Unfortunately, many of these farmers use primitive techniques and tools since so many farmers, strategies, and funds were lost after the war ("FAO...LIBERIA"). As a result, crop yields are considerably lower than they should be. Herein lies the root of the problem, with urbanization and agricultural naivety ever furthering Liberia's food shortages. Ebola worsened the problem in large part because of reactionary measures that inhibited and still inhibit many components necessary for farming.

The limited nature of the Liberian diet is primarily due to the lack of food availability and sufficient protein intake in most rural families. While scale is an important consideration, it's imperative that the world sees the problem on an individual basis as well, and how the current state of affairs affects rural families tasked with jumpstarting their country's agricultural economy. As far as family structure goes, families typically have 4 or 5 children. The tradition of large family size greatly increases the demand for food. This problem is compounded by the many gender biases found within the rural Liberian households. Women are expected to be the caretakers of the family and receive significantly less education than men. According to UNICEF, the ratio of educated boys to girls in Liberia is around 3 to 2 (Sirleaf). Schools are provided by the state, with a higher enrollment than one might guess at 96%. However, they are also overcrowded with a high student to teacher ratio ("FAO...LIBERIA" ). Colleges are also state-provided, but they only accept students based on their merits, as measured through standardized exams. The rural education deficiency leading to broad economic problems is a large factor in rural families' ongoing

desire for bushmeat, despite laws that ban bushmeat hunting. The desire and need for protein is simply too strong. In rural Liberia, families typically subsist on a single meal per day with meat from animals like chickens, pigs, cows, and fish over rice ("FAO...LIBERIA"). Unfortunately, even before the Ebola outbreak began, approximately 41% of the population was food insecure (Owadi et al.). That number has undoubtedly skyrocketed even further since. Specifically, the issue stems from difficulties in raising enough livestock, which is in part due to the prominence of exports and use of agricultural foods in cities. Of the average Liberian's daily caloric consumption of 2,163 calories, only an average of 7% of those calories come from protein, compared to the United States' recommended guidelines of a 10-35% protein diet (Peppers; "What...Carbs?"). A typical American also consumes significantly more calories, with an average of 3,770 per day ("What...Carbs?"). The scarcity of proper livestock caused by civil war and the destruction of land makes Ebola-causing bushmeat a desirable alternative.

While farming is the most important aspect of Liberia's economy, with about 70% of working Liberians involved in agriculture, farms are mostly small or medium-sized and operate inefficiently. Also, despite how much the livestock on farms contribute to the national GDP, farm-raised meat is often unavailable to the general population due to high prices and the emphasis on exports. Very low yields due to poor tools and methods are the norm ("Agriculture - Liberia"; "FAO...LIBERIA"). The industry is dominated by sustenance and cash crop farmers. Indeed, agriculture accounted for 42% of the country's GDP in 2008 during a comparatively strong agricultural period after the civil war and before the spread of Ebola. Yet the methods employed are very primitive, with farmers who grow rice and cassava (a woody shrub), making up 74% and 64% of the upland population respectively, using seasonal tactics like clearing forest/bush covered land and cultivating it with ineffective, small tools at the start of the rainy season ("Agriculture - Liberia"). According to the UN Food and Agriculture Organization, "Production of (rice and cassava) is mostly carried out by subsistence farmers who use rudimentary tools and traditional methods of cultivation" ("FAO...LIBERIA"). Lack of training also affects cash crop industries, such as the rubber industry. For instance, the level of rubber production dropped over 70% between the end of 2004 and the beginning of 2005 mostly due to poor preparation for cultivation by untrained workers ("FAO...LIBERIA"). Cocoa is another cash crop that Liberians grow because of the country's hospitable climate. It is typically sold directly to chocolate manufacturers (Larbi). Livestock makes up a large portion of the country's GDP as well, consisting primarily of chickens, pigs, sheep, cattle, and goats (Larbi). The fishing industry is also heavily relied upon. Much sought after at local markets, "Demand for livestock products greatly outstrips domestic supply", according to the UN FAO (Larbi). Unfortunately, this inability to meet demands leads to more dangerous alternatives and associated diseases.

Security from violence and Ebola is what Liberians need most in order to recover agriculturally. The breadth of these issues' impacts, more immediate from Ebola and longer-lasting from the war, are the greatest obstacles in Liberia's potential agricultural rise in 2015-16 and onward. After the 14-year long civil war, there was a distinct gap between generations, and the up-and-coming generation of farmers was left without the pre-war knowledge on farming techniques and essentially had to start primitively from square one. "The people who used to grow cocoa were killed or displaced during the war," said Mercy Corps trainer and technical advisor James Kiadii (Gutoff). Also, the effects of Ebola and the attempts to contain it pose threats to farmers' agricultural abilities and yields. The shutdown of villages and farms during the outbreak caused food prices to skyrocket and left a hungry population empty handed. Many markets that locals depended upon were suspended altogether. In 2014, Liberia's GDP growth more than halved due agricultural obstacles. Additionally, access to health care has significantly decreased with, according to the World Health Organization (WHO), 242 of the 292 pre-war health facilities left in shambles and unable to operate due to destruction and looting. (Kruk) As far as economic trends go, the market shutdowns have caused dramatic increases in food prices, with markets in the largest county, Lofa, where Ebola hit hardest, raising the price of foods between 25% and 79% ("Liberia Overview"). This can be attributed to "...limited supplies coming from supply sources because of the military roadblocks, border closure and restrictions on travel", according to the World Bank ("Liberia Overview"). Lofa was

also hugely affected by the civil war. Before the war, it was Liberia's cash crop powerhouse, with plentiful production of coffee, cocoa, and palm oil. Now, the farmland is largely unutilized and overgrown, both from civil war and the recent Ebola outbreak ("FAO...LIBERIA").

It is overwhelmingly apparent that bushmeat was and remains the main perpetrator in Liberia's Ebola crisis. That is, the illegal consumption of wild animals to provide protein is what transmits the virus from animals to people. All it takes is one transmission to start an outbreak. This problem spurs from deforestation before and after timber sanctions were placed on Liberia. When loggers fell high concentrations of forested land, animals that formerly called those trees home are driven towards civilization and forced to assimilate with human society. There, animals and humans coexist. Hunters capitalize on the cheap meat and kill in bulk, whether it be bats, monkeys, or other bush animals (Quammen). Deforestation is a major cause of Ebola, driving animals out of their natural habitats and forcing them to assimilate with humans, facilitating the spread from beast to man as hunters are able to bring in large amounts of cheap protein: bushmeat. For instance, in the case of Ebola's reservoir host, the fruit bat, one shotgun shot can supposedly bring down a half dozen to sell at a market (Marshall). It's cheap for both the hunters and buyers, but carries grave consequences on a large scale. Urbanization has a more direct, though perhaps not more dramatic effect on food scarcity than deforestation because it skips the middleman/virus of Ebola altogether. The move towards cities like Monrovia is the embodiment of Liberia's necessary modernization, but it is being embraced at the wrong time and in the wrong way. A country so torn and distraught must be rebuilt from its foundation before it can modernize. Urbanizing during such a time of crisis is like adding floor after floor atop an already collapsed skyscraper. It's essential that deserted farms are occupied and methods for bringing in greater crop yields and more viable sources of protein are taught. As a direct result of the Ebola outbreak, Liberia's overall agricultural production has slowed dramatically. This decrease in production has disrupted Liberia's economic growth and is akin to the results of the aforementioned civil war, which similarly displaced and devastated villages, harming agriculture most of all. According to the World Bank, "High prices for key staples have only exacerbated widespread food insecurity. Labor shortages continue to make it difficult for rural farmers to bring in the harvest..." ("Reviving...Leone"). The abandonment of farms due to the war and Ebola coupled with Liberia's rapid urbanization don't augur an agriculturally strong future if the current path is stayed.

Although the Ebola outbreak was destructive across the board, it has affected women significantly more than men. Since Liberian women are traditionally expected to be self-sacrificial and care for their families regardless of the circumstances, they have been subjected to direct contact with Ebola without any of the necessary medical precautions to prevent transmission and are often infected. These measures are taken because most rural farming families can't afford the price of transportation to or treatment at official clinics ("For...Crisis").

The problem of food shortages in Liberia won't be solved by the Liberian government, as it has proven itself incapable of resonating with its own people and even of enforcing its laws, as seen with the widespread consumption of illegal bushmeat purchased in totally open markets. While this could be considered akin to the U.S.'s difficulty in combating illegal drug distribution, that issue would be a little bit easier to solve if drug dealers set up hot dog stands with assorted narcotics, as bushmeat vendors do with dead monkeys, bats, and other wild animals. Due to this discrepancy in communication between the government and its people, the changes needing to be put in place must be undertaken by an outside organization, preferably a coalition of countries in order to maximize funds and global awareness. Therefore, the United Nations is the best candidate to solve Liberia's food scarcity issues from the various necessary angles. This would yield maximum public involvement and awareness, hopefully leading to donations that can be used to provide much needed resources like seeds, tools, and employees.

Now, to rid Liberia of Ebola's burden with finality, the issue also must be viewed from an environmental aspect. To remove the possibility of further deforestation and habitat destruction, the United Nations will need to restore its former sanctions on timber from logging in Liberia which it let expire in 2006 ("Security...Liberia"). While this will cause some people, mostly men, to lose their jobs, this is a necessary and ultimately beneficial evil, and will force labor back onto the farms where it belongs and is direly needed. A greater population of farmers operating for sustenance and distribution will both decrease demand, as they will likely be providing for themselves, and greatly increase supply. Such a change will mark the beginning of the end for Liberia's hunger problems, even those remaining from the civil war. Simultaneously and perhaps even more impactfully, preventing deforestation will cause the restoration of animals' habitats, leading to considerable separation between humans and animals and the prevention of interspecies contagion. Despite its recent rise to global infamy, Ebola has existed among bush animals for many decades and has decimated animal populations across Africa, even knocking out 53% of the gorillas in nearby Gabon (Powers). However, it only reached out to people after the sanctions on logging had been removed for a considerable amount of time. At that point, wild bush animals were living primarily among humans as pets and food. Transmission was inevitable, especially considering the 99% DNA similarity between humans and the all too prevalent apes (Quammen). If the UN prevents these connections from ever happening by mitigating deforestation and restoring habitats, families and villages will be able to coexist with one another rather than with wild animals.

The next step in an ideal plan to prevent Ebola's spread involves minimizing bushmeat consumption on a far more direct basis. It would require absolute enforcement of meat markets, ensuring that the animals present have been strictly raised as livestock and not hunted in the bush. Given that the Liberian government has proven unreliable in enforcing such restrictions, the United Nations would have to interfere by employing peacekeepers as enforcers to monitor markets and hunters without being intrusive or threatening. The final part of that step is crucial, as the UN must not mistreat the very people it is trying to assist. It's important that all parties involved maintain utter sensitivity with the people due to the public distrust of governmental action in rural areas. While having peacekeepers monitoring Liberian officials monitoring markets might seem redundant, getting this critical step absolutely right could mean the difference between an Ebola-ridden year and a year full of agricultural healing and development.

By preventing and properly reacting to future outbreaks while continuing to build the still damaged post-civil war economy, the country will be able to make an economical and agricultural recovery, allowing it to take fuller advantage of its resources in order to lower its poverty rate and food shortages. Liberia is not a naturally unproductive or infertile land, but has been made to seem so by catastrophe after catastrophe. The first step to building on what currently exists is recovery, and formally liberating Liberia from the probability of future Ebola outbreaks will allow farmers to return to pre-outbreak, and hopefully pre-civil war levels of production, both for cash crops to be exported like rubber as well as locally distributed crops and livestock. The rebound of farmers will mark the country's rebound as a whole, with food prices falling and supply meeting demand across the board. Rural life will become a more hospitable option for rising generations and Monrovia's population will fall, a necessary move away from urbanization to heal the wounds of a deeply weakened nation. A return to the farming lifestyle is what Liberia needs, and that needs to be facilitated by outside forces. With Ebola out of the way, Liberia will be ready to agriculturally industrialize and de-urbanize. These may seem like categorically opposite changes, but they are ultimately the paths that Liberians must take in order to compete on the global marketplace and subsist on locally operated family farms. Such actions will bring an end to their food crisis and give birth to a thriving nation of farmers, or, more accurately, the reincarnation of pre-war Liberia, ready to grow and excel with more effective techniques and tools. To drive Monrovia's enormous population back onto the country's expansive, abandoned farms, there must first be incentive. This incentive, given the extreme poverty under which Liberians live in the cities, won't need to be monetarily excessive. Instead, farmers will be provided with the seeds and tools deemed necessary based on the farm's acreage. Every acre of Liberia's farmland will be utilized, and every farmer will be trained by foreign workers and botanists

under the control of the UN humanitarian aid workers to learn new and better methods for increasing efficiency and crop yield. Tools to increase productivity will be provided to each farmer according to his or her ability. This second and final step will, obviously, come at a large price to the UN. However, the necessary sum of donations from contributing countries should be easily attained when the following fact about step one is made evident to the entire UN: according to Time Magazine, environmentally mitigating Ebola as planned could save \$344.0.7 billion and \$360.3 billion over the next century (Sifferlin). To put it into perspective, not having to react to future outbreaks in West Africa as was done in 2014 would save more than 10 times what the last outbreak cost, which came at the high price of \$32.6 billion according to the World Bank (Quammen). Luckily, the UN-run programs that have been recommended in this paper seem plausible, seeing as the UN recently gave \$15 million worth of seeds to the 3 most Ebola affected nations: Guinea, Sierra Leone, and Liberia (Ebola...Hunger). While far from the sum necessary, it's certainly a start and at least shows that the United Nations is interested in helping agriculture in disaster stricken West African countries, and Liberia fits the bill (Owadi et al.). It's crucial that the UN also consider putting an embargo on timber exports from Liberia akin to the one lifted in 2006 in order to environmentally mitigate the primary cause of Ebola: deforestation. There is much to be done on an individual basis by families within Liberia as well, primarily that they cooperate with the United Nations and help jumpstart their country's agricultural economy. Generally, the biggest changes will have to come from the loyalty of urban Liberians to their agricultural roots, embracing the rare opportunity to be supplied seeds, tools, and new techniques at the expense of foreign countries.

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