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### **Democratic Republic of the Congo: Rebuilding infrastructure to aid malnourishment and to ensure food delivery to the markets**

In a country where vital food crops are commonly traded for cash crops, it should come as no surprise that malnourishment is a common problem amongst the growing population of the Democratic Republic of the Congo (DRC). The cash crops, including sorghum and cassava are not adequately transported to areas where they can be exported through local and international markets. Road and railways are in deficient state, which proves to be a challenge for the export of crops. As noted by President Joseph Kabila, “We must have good transport infrastructure... Even today, we’ve got people who produce food and it’s thrown away because they can’t get it to market area,” (“Food for Thought”). Half of the infrastructure in the DRC is left in need of significant upgrades, including railways, roadways, air routes and waterways (“Democratic Republic of Congo Country Report”). Transportation is key to the country’s success.

Along with food security, improved infrastructure allows the DRC to provide their plentiful natural resources to the continent. The DRC has an abundance of many underlying resources. Between their potential of power export, export of food crops and cheap transportation of resources there are many possibilities and opportunities for the DRC, but they lack funding. If other countries or large organizations, such as the UN and World Bank, helped to fund the DRC, many solutions can be put into place.

A typical rural family in the DRC consists of many wives which all belong to one husband. The women raise many children to help accomplish necessary chores to survive. Women are raised to be subservient to the men. Single women are viewed as prostitutes despite their social status or occupation. During the meals, the men are served on the table and women, along with children, are to eat the leftovers. Food is scarce and does not contain vitamins necessary to sustain a healthy life and fight diseases (Ziemke). Meat is reserved for special occasions and rituals. Fish is the primary food source, causing many families to build ponds. They use their compost to develop plankton in which the fish feed from. The fish are then harvested for market and what is left is for the families to keep (“Food for Thought”).

Children in the DRC never fully experience a childhood. From the minute they gain the ability to walk, they are forced to endure adult responsibilities and complete the chores. Catholic, National and State schools in the DRC all provide different experiences for children. Catholic schools provide mission schools for the more privileged. National schools have understaffed classrooms. State Schools are staffed with unpaid teachers. Some male teachers solicit sex acts in exchange for good grades or money. In rural areas, the elders have a different view of education. They believe that school is spent wasting hours learning useless facts instead of gaining wisdom from elders. The elders also believe that they could learn more about farming and survival from their parents. Healthcare is extremely scarce. Less than one percent of the GNP is directed towards healthcare (Bremner). Western doctors have begun to shut their doors.

Because of this, sick patients are forced to resort to ancient methods discovered by their ancestors (Ziemke).

A typical farm size from 1970 to 1990 decreased from one and a half hectare to a half of an hectare simply due to the rise of rural population. With a continuance in the rise in rural population, the average farm size continues to decrease. Today, a family averages a 1.6 hectare farm. Sorghum is a crop produced that is sold at a higher price. The cassava plant is produced in abundance because it is cheaper, but it is also a lot less nutritious. Coffee and quinine have been observed to be a rise in cash crops. In order to produce more of these types of crops, they reduced the amount and quality of land for peasant household food production. The men in a typical DRC family determines what and how much of each crop is produced and the women are left with little to no control.

Agricultural practices vary greatly throughout the country due to the vast geography. Over sixty percent of the DRC is covered with forest, making it difficult to transport goods. Crops that are produced for market range from coffee, rubber, palm oil, cocoa, sugar and cotton (“Agricultural Expansion and Deforestation in the Democratic Republic of the Congo”). Although the global food market favors wealthier countries, Africa has proven to be the larger producer in the market. DRC farmers lack support from the government. Roadways are not maintained and they are forced to be left out of local and international food markets.

Lack of food security in the DRC stems from many different barriers that a typical family may face. Agricultural productivity is very successful in the DRC, however because of the lack of infrastructure, or roadways, all of the crops produced are unable to be delivered to markets. This prevents them from competing in local and international markets. From a very young age, children are forced to work for their family through chore work to ensure survival. Employment is very minimal in rural areas. Government workers are rarely paid (Ziemke). There is very limited access to any food markets in farming areas. Women have very little control over crops that are produced, so the men trade in cash crops instead of food crops. For the food that the peasant households use to eat, the men plant very cheap and less nutritious crops. Eating the cheaper and less nutritious crops causes inadequate nutrition. Healthcare is also very scarce and minimal. The families in rural areas then suffer with malnutrition because they do not have access to healthcare, which results in a never ending cycle of malnourished families.

Improving infrastructure in the DRC, including roadways, railways, waterways and air routes, will start a chain reaction of success. This will create access to the food markets, provide income to the family for crops that are sold and provide food for the rest of the country. In order to earn an income to buy food, one must be able to sell his crops. In order to sell his crops, one must be able to transport the goods to market. Roadways have been left to deteriorate in an atrocious state. The government pays little to no attention to this underlying problem causing a lack of food security in the DRC.

Currently, the DRC has limited their infrastructure budget to \$700 million a year. \$430 million of that is being used on unnecessary resources. At this rate, it would take the DRC over 100 years to reach a satisfactory level. To keep up with the rest of the fast developing world, the DRC will have to spend a minimum of \$1.1 million a year alone on maintenance (“Democratic Republic of the Congo Country

Report”). Increased spending is necessary and without it, the outcome will be disastrous. There is an urgent demand for a solution in this area.

There is no motivation in this area to move forward, nor is there any reason to work backwards. Without funding, the project is merely staying the same. According to the “Democratic Republic of the Congo Country Report,” plans are underway to increase budget spending. While the status is staying the same, the problems for a rural family only begins to worsen. There is no other income for the families and the continue to live in unacceptable conditions and the food supply only grows increasingly short.

There has not been a big push or a lot of encouragement towards to DRC government to move forward with infrastructure improvement. Unfortunately, with this movement being stagnant, the citizens of the DRC continue to suffer through malnutrition and poverty. If groups that solely focus on improving infrastructure with the support of the suffering citizens brought research findings and their stories directly to the government, hopefully it would open eyes to the real problems. Push from outside sources such as surrounding and other countries, work groups that improve infrastructure in countries and foreign aid groups would also bring light to the problems that the DRC is currently facing.

Transportation of goods around Africa can be done in many ways. The DRC has the most abundant hydropower resources in all of the continent. They have the potential to provide energy for their own country and become the largest power exporter in Africa. With the energy provided, they can build a system similar to the monorail. This system would be powered electrically, with their own power and would be built up to avoid destruction from flooding. It would allow goods to be moved around quickly and efficiently. The monorail-like system is very cost efficient to the country and would be able to be built with only a narrow path cleared through the forests (“Democratic Republic of the Congo Country Report”). This would help provide a fast income to families through delivery of their crops and goods. Improved roadways would help with transport of the larger goods that could not be delivered by monorail. Waterways provide an extremely cheap way of movement. However, they are not very navigable. With increased budget spending, an investment could be made to help develop them.

To implement and operate a monorail system in the DRC, there are many factors that would need to be considered. The majority of the resources are right there within the country. The most necessary resource, power is abundant in the DRC. Funds that are currently set aside for the roadways and infrastructure could also include the monorail system. It would be controlled by the government but also allow the citizens a set amount of rights to access.

In 1888, engineer Charles Lartigue developed the Lartigue system. It was the first commercial monorail system and the only to regularly carry both passengers and freight and cattle. It was a straddle type monorail on A- shaped trestles. First, he created a prototype monorail in Algeria to carry esparto grass across the desert. Because of the Lartigue System, I believe that with advanced developments, a similar system could be implemented in the DRC.

Many factors could disrupt the success of improving the infrastructure. Population growth is the biggest threat in this fast growing world. Increasing the number of families living in rural areas also increases the number of farms located there. Roadways would have to be built and maintained in areas that would not

affect farming. Also, a larger population calls for more crops to be produced from rural areas to provide food. A larger demand for energy would require more transport for the hydropower resources that are produced in the DRC (“Democratic Republic of the Congo Country Report”).

Water is a very vital component to agricultural productivity. Water scarcity is very severe in areas like the DRC. Funds are lacking to undertake the project to improve the state water pumping system to provide safe and sanitary water to its citizens. Instead, people are forced to get water through rusty and dirty pipes. IRIN news reports that only sixty percent of areas receive water from the state water system and the rest are left to find water on their own (Shore). The others usually find water in natural springs. Although, it is sometimes proved difficult because of the waste in the waters. Access to the clean springs is very difficult and improved roadways towards the springs would also allow more citizens clean water.

Awareness is key to implementing the many possibilities that could help provide food security in the DRC. Rebuilding and improving infrastructure lacks support from the government. At times, less than one percent of the GNP was spent on infrastructure (“Democratic Republic of the Congo Country Report”). Along with the government, the rise of many groups will help with rebuilding.

The Rural Development Infrastructure Support Project (PADIR) is solely focused on rebuilding and constructing roadways in the DRC. The completion date is currently set for 2017, but with more support financially and physically, the project can be completed in a shorter span of time. The total budget ranges around 50.87 million dollars. Financial support will allow more to be completed with this project.

Improving infrastructure has also proved to be a source of income for local people. According to the United Nations Office for Project Service (UNOPS), “Over the past 13 years, UNOPS has supported the construction and rehabilitation of more than 6,000 kilometers of roads and more than 500 bridges. These works created about 7 million days of paid work for local people,” (“Democratic Republic of the Congo Operations Centre”). UNOPS completes many social and environmental studies before they plan out their project. Once the studies are finished, management plans are developed to determine the specific aspects of the projects.

Most groups refrain from completing their projects in isolated areas because of the possible problems that may arise throughout the duration of the project. The UNOPS, however, has worked on 580 kilometers of roads in very highly isolated areas. Along with developing roads, UNOPS has developed many different buildings to help the citizens of DRC. They have constructed law enforcement buildings, schools, water supply systems, health centers, markets and hospitals.

Raising awareness for successful groups like UNOPS or PADIR, will help the DRC become more successful tremendously. Helping donate and fund these groups directly support the rise of infrastructure. Most groups focus on raising awareness of hunger in African Countries but these groups focus solely on directly finding the problems and creating solutions.

In exchange for help in funding for roadways and waterways, the DRC government could trade with other countries for goods. Individual farmers and families could help with providing their crops or goods for trade. Presenting information to larger scale electrical companies would help with developing the

hydropower and designing a monorail system. Funding for that could also come from the aid of foreign countries in exchanges for goods. Navigation of waterways could be completed by a group similar to the Department of Natural Resources (DNR) in the U.S.

The national government in the DRC needs to look at all of the possibilities they have to improve food security in their country. Implementing the monorails would not cause too much deforestation and would be allowed with only a small path cleared through the forests. Helping with the system will provide income for families living in poverty. Their goods will help support the international market and transport their goods all over the country, Africa and to other foreign countries. Currently, so many crops are being produced and harvested, yet so little are being exported out. The crops are not being put to good use and the families are spending a large amount of money on the cash crops, when they could be spending them on food crops to feed their families. The families themselves can help simply by supporting the government's decisions. Roadways may interfere with farming, but in the long run the families will directly benefit.

Food security is defined as the availability of food and one's access to it. A household is considered food secure when there is no fear of starvation and hunger. In countries like the DRC, very few are comforted by food security, and that is on the low end of the secure scale. Access to food is very limited simply because one is not able to get to the markets or transport their goods to the markets in exchange for an income to bring home to their family. Food security runs hand in hand with water scarcity. In order to maintain good health, one must have food and access to clean water. The DRC also struggles with the availability of clean water. This is why malnourishment is so widespread in African countries like the DRC.

Access to food and water requires roads that can be traveled on. In their current state, the roads have been left to deteriorate and there is no funding left to fix them. There is \$1.1 million dollars that the DRC needs to allow for maintenance alone. Project groups such as UNOPS and PADIR can be scaled up to allow more maintenance and construction of roads. Repairing and building the roadways will allow for goods and crops to be transported to compete in local and international markets.

If systems such as the monorail system are set into place, goods will be able to be delivered very efficiently from one part of the country to the other. This system can be built up, avoiding natural disasters such as flooding. Monorails do not require much space, as they have a very narrow track and are very narrow themselves. Powering them will not be any difficulty considering all of the hydropower resources the DRC has access to. Using their own power is very cost efficient and could also open more doors for the DRC to become a large power exporter.

Waterways are another low-cost way to transport goods around the country. Unfortunately, the navigability of the rivers and other waterways is lacking. With help from natural resource departments and experts of the rivers from other countries will help develop new systems. In exchange for help in advancing water ways.

The last step to implementing these solutions is to simply raise awareness. Improving infrastructure is a very vital step in helping develop the country and boost food security. There are so many key components

to infrastructure that many people overlook. A variety of steps can be made to improve food security and provide an income to family.

The government in the DRC needs to focus on what they should be funding. Because the main problem in the DRC is food and water scarcity, they should be taking all steps to improve it in any way they can. They can provide many jobs for the unemployed citizens by allowing them to help build new systems, roadways or repair roadways. In order to take any steps forward in developing a secure and successful country, the DRC must look at the underlying problems and how they can be solved.

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