

Rachel Brown  
McCutcheon High School  
Lafayette, IN

The Democratic Republic of Congo, Factors: Spoilage and Waste, Water and Sanitation and Malnutrition

### **The Democratic Republic of Congo: Addressing Food Insecurity, Water Sanitation and Access, and Economic Success**

Wangari Maathai once said, “In a few decades, the relationship between the environment, resources and conflict may seem almost as obvious as the connection we see today between human rights, democracy and peace.” This can be especially true to the Democratic Republic of Congo. Although the Democratic Republic was once a thriving country with an abundance of resources, today it is one of the most destitute, corrupt, and poverty stricken countries in the world. Corruption can be traced all the way back to when the Democratic Republic of Congo was colonized by King Leopold II of Belgium, who operated more like a dictator, ordering the immediate slaughter of anyone who opposed his ideas. The people rebelled through riots and writing and eventually gained their independence in 1960. From the time the Democratic Republic of Congo gained its independence, a shift in leaders took place, each new leader more tyrannical than the previous one. This constant shift in power also caused a change in ideology, and this change caused fear and panic. Many Congolese did not agree on the direction the DRC should go on, causing tension between the Congolese and nine African countries. This tension caused the first and second Congo wars, wars which have yielded over five million deaths since the first war started in 1996. The current president, Joseph Kabila, came into power in 2001. When Kabila came to power, the second Congo war began, spanning the worst war the world has seen since WWII. Although warfare killed hundreds of thousands of people, disease and hunger killed far more. Eventually, in 2002, the DRC signed peace negotiations with Uganda and Rwanda, and later in the year with rebel groups as well. Although peace negotiations were signed, fighting still continued with rebels, neighboring countries, and the exiled Zaireans and Rwandans. The fighting raged on, with illegal gun trafficking, mass murders, and rape becoming weapons of war. In late 2006, elections were held in the DRC; Joseph Kabila was officially elected president. Today the Democratic Republic of Congo is still under the control of Kabila and fighting, hunger, and poverty rage on.

The Democratic Republic of Congo is an infusion of African and European culture. The DRC consists of over 250 ethnic groups and over 700 different dialects. While the DRC does not have an official religion, over half the Congolese practice some form of Christianity. Culture is not the only thing in the DRC that is diverse. The DRC has a unique topography including the Congo River in the North; basin plateaus, rainforests, and mountains in the west; and grassland and forests in the east. A typical Congolese family consists of 1 to 14 members, a huge number, but people die due to wars, or disease and poverty. The man of the house, if alive, is the primary bread winner for the family. The women typically stay home to look after the children and cook. “Furthermore, in the DRC children are seen as a sign of wealth and prosperity, so large families are not uncommon” (Gettleman). Children attend primary school, but most children do not continue with their education, because they have to help supply an income for their families. The men typically farm for their own food and sell cash crops at local markets and across Africa and Asia. The staple crop of the DRC is cassava, while cash crops include tobacco, coffee, cocoa and sugar cane. Farming is typically done on plantations, and without any of the common technological luxuries such as tractors and plows that farmers in the U.S and Europe have. Along with a lack of access to technology, Congolese also have a lack of access to health care. Health care centers and hospital in the DRC are few and far between. Medical workers are under trained and facilities are not technologically equipped. This is due to health care not being funded or supported by the Congolese government.

Today the Democratic Republic of Congo consists mostly of people aged 15-25, as the life expectancy is only 54. Many people living in the DRC die from disease, malnutrition, and war. The Democratic Republic of Congo is rich in minerals and resources, but its people still live in hunger. The government

has decided to invest in mining, pulling people away from farms and into the mines. The Democratic Republic of Congo is home to some of the world's most profitable gold mines. Gold prices have quadrupled in the last ten years, and the government has seized this opportunity to become profitable, while its people starve and die from hunger and disease. The DRC is one of the few countries in the world listed as extremely alarming on the Global Hunger Index. Most citizens live on a day to day basis, not knowing when and where their next meal will come from. "WFP reports that a staggering 95 percent of the people in the DRC earn less than \$2 a day. It says nine percent of children under age five are acutely malnourished, and 43 percent suffer from chronic malnutrition, which is a critical state" (Schlein). This constant hunger among people living in the DRC, has led to conflict with opposing countries and with its own people. War has been huge part of the DRC, since the very beginning of its formation. "The DRC is a constant warzone, with over five million deaths just since 1996 ("Eastern Congo")." Many children are often left orphaned and are forced to leave primary school to become the primary caretaker for themselves and their siblings. The war has greatly affected food security, water availability and sanitation, and the economic success of the DRC.

The rainforests do not supply adequate land for farming, and hunting game is not probable. Because of this the people of the Democratic Republic of Congo rely heavily on fruits, vegetables and grains as their primary resource of food. Staple foods include, bananas, peanuts, pineapple, and bread, the most prominent food is cassava. Cassava is a brown, nutty, root high in starch. Cassava grows best in tropical, moist, fertile, and well-drained soil, and is drought proof, virtually pest proof, and can grow in the harshest of soils. Cassava is high in calories, as well as nutrients, making it a prominent food for food insecure people. Most Congolese own land, where they farm cassava, along with other staple foods and cash crops. The eastern part of the Democratic Republic of Congo is still in a raging war, which destroys many of the planters' crops. Cassava also has a forty-eight hour "shelf" life when the roots are pulled. Because of this small shelf life when disaster or war strikes, many farmers do not have any food left to last until they can rebuild their farms.

"One solution is freezing or coating cassava in wax, to help extend its "shelf" life (UMMSFC)." A freezer can be built by taking a smaller pot and putting it in a bigger pot. Then the space between them is filled with wet sand and cover with a wet cloth. When the water evaporates, it pulls the heat with it, making the inside of the pot cold, creating a refrigerator. Large makeshift refrigerators can be built on plantations to store cassava. The larger refrigerators would be built out of bricks, sand, and a tarp materials, which are inexpensive and easily attainable. Smaller "refrigerators" can be built for each family. This is to ensure if the larger refrigerators were to become damaged by a natural disaster or war, each family would still have enough cassava to survive while they find other food or start another farm elsewhere. "Preliminary experiments towards preserving fresh cassava roots by coating them in wax were carried out in India. The wax contained a fungicide and the roots were dipped in it to coat them Storage duration could be extended to about 10 days with weight losses amounting to 10% (UMMSFC)." The wax used in India was Nipro Fresh, an ammonia free, eco-friendly wax used on fruits and vegetables to extend shelf life. Nipro Fresh has worked well in India and other countries because it extends the "life" of fruits and vegetables so they are able to be transported across the world and last a long time. In the DRC, Nipro fresh would work well because if war ruins the crops the farmers will have 2 to 3 weeks of cassava to eat and can find new land to farm on.

"Another solution, suggested by IITA, is large food processing and storage centers in the cities powered by the cassava itself (SLRGOMCPC)." Cassava is not only a superfood, but its chips can also be turned into biofuel. The processing and storage centers would allow for a higher quota of cassava to be shipped as well as cut the processing time down dramatically. The processing centers could process high amounts of cassava in minutes, which would take someone by hand days or weeks. Cassava processing plants have been designed in Europe and used in Sierra Leone with much success. "Since 2008, IITA and partners, with support from USAID, have been working through UPoCA in efforts to help rebuild Sierra Leone's war-ravaged agricultural sector by improving crops' yields, and through cassava value addition

(SLGOMCPC).” In Sierra Leone cassava processing centers have not only improved the crop yield, but has also created jobs for many of its people. Sierra Leone is a country destroyed by war, poverty, and hunger, just as the DRC has been. The DRC would gain much of the same success Sierra Leone has, the only difference being DRC plants would be run on cassava chips, working just as gasoline does in a car. The biofuel would start an engine that powers the processing machines.

“In the Democratic Republic of the Congo, less than 29% of rural inhabitants have access to drinking water, and less than 31% have adequate sanitation facilities (Roca).” The DRC has both a sanitation problem in both its rural and urban areas. The lack of sanitation and access to fresh water helps perpetuate the spread of disease and, ultimately, death. In the urban areas, garbage line the streets, giving off a pungent odor and attracting pests such as flies and rodents. Having access to clean water would help totally transform the DRC and the health and wellbeing of its people. “Safe drinking water alone reduces water-related death by 21%, sanitation alone reduces those deaths by 37%, and proper hygiene (hand washing) alone can reduce the water-related death by 45% (HTS).” With a lack of government support, money, and construction resources, water access and sanitation has proved a difficult task.

With the increase in urbanization, one solution would be building wells. The wells would be built in a community and be managed by one or a group of officials. Just like the DRC, Kenya struggles with providing clean water to its people, and in the 1980s many wells were built in communities in Kenya. Success was short lived, because by the 2000s most wells built were deteriorated. “It was found that, when a community was in charge of taking care of the well, nobody felt ownership to take care of the well. It was found that when selected representatives were given responsibility over the well, it was maintained and taken care of much better (Water Project: Kenya).” The DRC can get up to nine inches of rainfall in one month. When it would rain, the water would trickle down deep into the soil, and up into a small tube, where the tube would connect to water pump. In the DRC if wells were built in the urban areas, each community would have a designed group of people to take care of the well. The community, would also have to be somewhat financially invested into the well because if communities are financially invested in the wells, they will be more inclined to take care of them. Having the community involved personally and financially will help ensure the success of the wells. In rural areas, transporting water is very costly and almost impossible, due to the immense size of and distance between urban and rural areas in the DRC. In rural areas, implementing solar powered water pumps on farms and plantations would help solve the water crisis. “The solar-powered pumps push water into storage tanks and then gravity takes over to distribute the water to households”, said Dara R.M. Ung, a project advisor at the Ministry of Agriculture, Forestry and Fisheries (KRATIE).” A solar powered water pump was recently implemented in Cambodia successfully. Each family using the water pump pays on average only fifty cents a month to use the pump. In the DRC, the average person earns two dollars a day, so paying fifty cents a month would not be a problem. “The DRC is a very hot and humid climate, so getting enough solar power to power the sanitation center, would not be a problem (CDC).”

Another solution is solar water disinfection, which was developed in the 1980s.” SODIS, as a virtually zero-cost technology, faces marketing constraints. Since 2001, local NGOs in 28 countries have disseminated SODIS through training of trainers, educating at the grassroots level, Users of SODIS fill 0.3-2.0 liter plastic soda bottles with low-turbidity water, shake them to oxygenate, and place the bottles on a roof or rack for 6 hours (if sunny) or 2 days (if cloudy). The combined effects of ultra-violet light (UV)-induced DNA damage, thermal inactivation, and photo-oxidative destruction inactivate disease-causing organisms” (CDC). SODIS would work in the DRC because it is low cost. Once implemented, sanitized water can be achieved in little time.

Once the Congolese are fed and have proper sanitation, a millennium village can be set up. The millennium village would offer microcredit. Microcredit is lending small amounts of money, estimated between \$2 and \$30. This money would then be used for Congolese men and women to start up entrepreneurial businesses. Once a person earned money, he or she would pay back the loan in small

amounts. The loans would be collected online and anyone in the world would be able to sponsor a business. A donor would pay \$5 to \$25, and the money would go directly to the person being sponsored. When all the money donated is earned back, the donor would then get the investment back, and be able to invest in other businesses. "Microcredit has been done in India, with a very high success rate; in fact over a 98% return rate (Parker)." Microcredit worked well in India because it gave people the power of money and enabled them to get themselves out of poverty. That then allowed them to invest in other financial ventures, improving the economy and India as a whole. In the DRC, if millennium villages were to be set up and the microcredit solution were to be implemented, it would help the Congolese get out of poverty and help stabilize the economy. If the economy is then stabilized, the DRC can tackle other developmental issues such as human rights and education.

The Democratic Republic of Congo has been corrupted by the constant change in leadership. This change has caused friction among Congolese and other countries sparking wars. These wars have decimated farms, water access and economic growth. Adding minor changes such as coating cassava in wax and building cassava processing plants would help greatly reduce food insecurity. Using solar powered water technology and building wells would help water sanitation and access. Once the Congolese are fed and have access to clean water, economic growth can be improved through microcredit. These solutions are not going to be quick or easy, but Colin Powell once said, "A dream doesn't become reality through magic; it takes sweat, determination and hard work."

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