

Rosemund Ragetli  
Westwood Collegiate  
Winnipeg, Manitoba  
Kenya, Food Waste

### **An Economically Plausible Reduction of Food Wastage in Kenya.**

With the advent of global import and exportation of food, wastage has become a major issue, affecting, essentially, every country on each of the continents of the globe. Government corruption, and/or inadequate educational systems are often the root cause of food insecurity, and therefore wastage, in Third World countries. While it is unreasonable to expect Developed nations for example Canada, to become involved and effect change within such entrenched problems as these, there are numerous approaches which would benefit the economy of a country, as well as assist in the development of systems which would improve food storage and food transportation, for those living in Third World countries.

The majority of food wastage in developing countries occurs during the early stages or processes of the agricultural industry. Factors including sub-par harvesting methods, technological constraints, and substandard transportation methods between farm and market precipitate food loss, resulting in a loss of income for the farmer and increased prices for consumers. In Africa alone, the quantity of food lost in one year is enough to feed 300 million people (FAO, United Nations). Supporting farmers and adjusting the techniques implemented during these early stages of the agricultural process, would greatly reduce food waste, benefitting both the farmer and the consumer.

Food wastage is most certainly prevalent in the East African country of Kenya. Bordering the Indian Ocean and surrounded by Somalia, Ethiopia, Sudan, Uganda and Tanzania, Kenya has a population of approximately 48.46 million (World Bank, 2016) and is governed by a newly established Presidential Democracy. With about 74% of the population living in rural areas, the agriculture sector has become a cornerstone of the Kenyan economy, contributing about 75% of the domestic trade (World Bank 1). Approximately 17% of the land in Kenya is considered high potential (Kenya Land Alliance, 5), with the major crops being maize, beans, wheat, peas and bananas (Wambugu; Muthamia, 19). The average farm is approximately 0.47 hectares, which is about 0.15% of an average Canadian farm. The Kenyan climate and topography vary greatly, from about 10 degrees Celsius during the winter to about 34 degrees in the summer (Kilavi, 13), and containing all forms of geographical regions from mountain ranges to swamps and forests.

The average household size in Kenya is about 4.4 persons, with the majority of the population dwelling in a mud floor and metal roofed home (Munene, 2&22). The agriculture industry is responsible for approximately 65% of Kenya's employment (World Bank, 1), with most families surviving through subsistence farming. The staple diet is maize, wheat and rice (Mohajan, 35). Due to the widespread lack of electricity, rural citizens rely on charcoal or firewood for cooking fuel (Munene, 22). The average annual income in Kenya is about 2385 KSO or \$25000 USD. The majority of citizens have access to water through springs, rivers, or pipes into a nearby compound, while about 63.8% of the population rely on a pit toilet (Munene, 23), and only 12.8% own a telephone. While there are road systems throughout

Kenya, they are of such low quality, they provide minimal benefit to rural citizens travelling to local markets or beyond. One of the most significant problems for the average Kenyan family is the issue of food wastage. Whether they are farmers or consumers, this is a significant dilemma for Kenyan food supply and security.

In Kenya, approximately 32.9% of all food produced is wasted (Feed Back Global, 5). While the government plans to implement practises, which will reduce food waste, as stated by the President during a speech in 2017, little or no significant change has been seen in the Kenyan agriculture industry in this regard. This national crisis has innumerable repercussions on essentially every subset of the population; from the elderly, to women, children, men, refugees and minorities. Food waste in Kenya is predominantly born of numerous extremely entrenched problems including government corruption and a widespread lack of education among the general population.

The Presidential Democracy which currently exists in Kenya, is known to be one of the most corrupt governments in all of Africa. Bribery is considered commonplace (Njoroge, 4). This leadership by incompetent career politicians has greatly impacted Kenya both economically and socially. Not only is entrenched corruption an issue, but the conflicting goals of rural and urban residents in Kenya is also a major concern. This is highlighted in the government's national plan entitled "Vision 2030", which will devote a great deal of money to the improvement of infrastructure and technology within Kenya (Kenya Vision 2030, 6). Urban citizens have a supply of basic necessities such as food and water, and can, therefore, afford such ventures, while those living in rural Kenya, are simply focused on obtaining sufficient food to get by and do not have the luxury of being concerned with their nation's political and technological future. These conflicting goals have caused significant divisions between urban and rural Kenyans. This tension is also expressed within the nation's education system.

In rural Kenya, approximately 7.6% of the population finish secondary school, and only 3.2% will go on to college or university (dhsprogram, chapter 2). Given that the Kenyan economy relies heavily on the agriculture industry, which is sustained by rural populations, this staggeringly low statistic reflects badly for the country as a whole. Not only is this an issue of numbers, but it also begs the fundamental questions of educational quality, purpose, and vision. The true goal of an educational system is to teach and foster higher thinking; to give each student a platform of knowledge on which to form conclusions. These higher purposes are lost in Kenyan education, and students who do graduate from secondary or post-secondary schools tend not to have the knowledge and abilities necessary, in order to solve the deep rooted problems within Kenya's social and economic structures.

It is evident that neither Canada nor any developed nation, can truly end food insecurity in a country such as Kenya. Due to governmental corruption and a broken education system, any substantial aid which First World countries may provide, will rarely reach the rural communities for which it is intended. Essentially, one of the only means by which Kenya could improve her government and economy is by authentically rebuilding the education system. In theory, this would allow rural citizens to receive proper education, providing a crucial link between rural and urban Kenya. This, unfortunately, is not a practical or achievable goal. With the Kenyan government lacking the motivation to focus resources on developing a

proper educational system, the future of Kenya is essentially crippled, both socially and economically.

It is neither a realistic, nor plausible goal to suggest that Canada could rebuild Kenya's governmental or education system. Canada should instead, focus on implementing reasonable technological improvements within the early stages of the agriculture industry in Kenya. By targeting the lower levels of this chain, a realistic opportunity would exist to affect change within Kenya's rural communities. This approach would also benefit the Canadian economy. The United Nations, for example, introduced a lower level method, in order to reduce food waste and improve food security in developing nations: By implementing household sized grain silos (FAO, UN, 2). In many countries, including Bolivia, a reduced grain loss was achieved, dropping wastage from over 20% to less than 2% (FAO, UN, 2).

As previously mentioned, a significant problem within the Kenyan agricultural system is the inordinate amount of food waste that occurs at the early stages of production. Farmers do not have the proper technology to effectively harvest their produce and transport it to market without significant wastage occurring. This has a devastating affect on farmers, as they struggle to produce enough food to sell to the consumer. One implement that would reduce food waste would be the introduction of wooden crates. Almost every third world country, including Kenya, uses burlap sacs in order to transport produce to market (npr.org). This method results in unnecessary spoilage due to bumping and bruising during transportation between the field and market. A simple wooden crate would ensure a higher percent of the farmer's produce making it to market, thereby benefiting the farmer economically, as well as increasing the amount of food circulating within rural Kenya. Given Canada's already established trade partnership with Kenya, this would not be an overly complex process to implement. The products that are shipped to rural Kenya from Canada would be sent in wooden crates rather than the usual disposable storage methods. The Kenyan government has no use for wooden crates, and therefore no reason to stop them from reaching rural communities. Once they have reached the interior regions of the country, the crates would be reused by farmers to transport their goods to market. This simple method of waste reduction would essentially sustain itself.

As already noted, the average farm in Kenya is generally quite small (Kenya Rural Logistics Report), producing relatively little food in comparison to Canadian farms. The number of crates each farmer would need to transport their harvest would be fairly limited. Remaining, unused crates could be used to satisfy various other needs within rural Kenya, for example, fuel for cooking. Approximately 85.2% of households depend on firewood or straw as their source of cooking fuel (dhsprogram.com, Chapter 2), and wooden crates would be able to fill this deficit. In addition, a very large portion of homes are built using wood in at least part of the structure, therefore these crates would also provide building supplies. These possibilities would contribute positively to the low quality of life and high starvation rates in rural Kenya.

Shipping Canadian food exports in wooden crates to rural Kenya would fulfill numerous basic and local needs. In addition, this idea would also be beneficial to the Canadian economy. By exporting these crates, Canada would access a lumber market otherwise undiscovered, and due to the already established paper trade between Canada and Kenya, (Kenya/Bilateral Relations) the Kenyan government would have very

little reason to turn away such a trade deal. With the Canadian Economy benefiting from a new trade partnership, the Kenyan market would profit from a vastly increased circulation of food.

As a trusted developed nation, exporting approximately \$113 million (Kenya /Bilateral Relations) worth of trading goods per year to Kenya, Canada has the unique ability to expand trade to a largely untapped market. With the promising research and obvious benefits for Third World populations, another possible area of focus, is the food irradiation market. If Canada were able to expand production of irradiated goods, particularly in foods which Kenya struggles to produce, such as lentils or food grade oil grains (Canada, statistics annual exports), this market could very likely flourish. With the shelf life of products substantially increased, spoilage would become drastically reduced. While many third world countries are beginning to implement food irradiation (iaea.org, default publications), Kenya is not yet economically prepared to do so, and until such a time as this becomes a possibility, Canada has the unique ability to fill this market.

Currently, the United States and Europe account for 95% of Canadas export trade, and apart from a growing relationship with China, Canada has invested very little effort in building trade relations with other nations. Canada has barely brushed the surface of trade with Africa, and as Kenya is considered to be the gateway into the continent (Kenya Elections Key Issues Past and Present), such an economic relationship would also be beneficial for Canada. While it is simple to speak of large scale social charity work in which developed countries would rebuild a countries water system, or infrastructure design, these massive expenditures are simply not practical or sustainable for Canada. It would essentially be impossible to convince any first world country to invest so much without a tangible economic return.

While it is easy to suggest that first world countries should aid developing nations by rebuilding roads, waterways, or the education system, considering the feasibility of such endeavours is imperative. As is the case in Kenya, a morally corrupt government and broken education system, among other factors, makes large scale charitable works such as road building and water system improvement impossible. Instead, attention should be directed to reasonable and attainable objectives, benefitting both the Canadian economy and rural Kenyan populations. Two such examples would be the use of wooden crates for agricultural transportation and secondarily as fuel and building supplies, and the newly emerging market of irradiated foods. Food security, and food waste have been global issues affecting every country on the globe. It is important to take into account the entire situation regarding a countries food security, and recognize that countries which set attainable goals will be the ones who will slowly begin to chip away at this issue, perhaps one crate at a time.

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