

Rachel Currant  
Bondurant-Farrar High School  
Bondurant, IA, USA Guyana,  
Spoilage and Waste

### **Guyana: Cleaning the Streets and Country**

Have you ever walked down a street and seen a trash bag blowing against a building as the wind pushes it by? It's a quite common sight in many places. Now, imagine that bag along with a half empty sack of squashed fruit, three used pizza boxes, countless empty soda bottles, a few stained t-shirts, and a wretched smell that makes you want to turn around hoping you will never experience that street corner and smell again. That is an experience that many people face all around the world, especially in a country in northern South America called Guyana. Guyana is a developing country that is home of the Guyanese. The country is bordered by the Atlantic Ocean to its north, Venezuela to its west, Brazil to its south, and Suriname to its east. The country has a population estimate of 750,204 with about 26.8% being in urban areas and the majority 73.2% in rural areas ("The World Factbook: Guyana"). The most urban areas are around its capital, Georgetown, and near the Berbice River, which is the farthest east major river in the country.

Guyana is a largely agricultural country. It is nearly self-sufficient in producing its own food. In 2011, 77.4% of the land was occupied by forest and 8.4% of the land was reported to be cultivated land. The Guyanese farmers grow and harvest many products, including: sugarcane, rice, shrimp, edible oils, beef, pork, poultry, and fish ("The World Factbook: Guyana"). There are a variety of farms in the country to raise all of these different commodities. For example, large farm operations, such as plantations, grow sugarcane. Small farm operations, such as family owned farms, grow rice. Fisheries are also becoming more popular and growing, as well. The climate being hot, humid, and tropical-like accounts for these commodities to be able to grow and thrive in Guyana. There are two rainy seasons in the year in Guyana, one from May to August and the other from November to January.

In the history of Guyana, there have been many switches in the way the country is run. Before 1966, it was first a colony of the Dutch, then of the British. In 1966, it was declared independent of its mothering country and was able to have its own leaders. It was not until 1992 that a president got elected fairly. The country has a Parliamentary Republic government, consisting of a legislative, executive, and judicial area. The legislative consists of a unicameral system of 65 members elected by either national party lists or administrative regions. The executive has the president who is elected through being the top nominee of the party winning most votes. The president has a cabinet. There is also a judiciary that has a constitution. Locally, there are democratic councils for each 10 regions of the country ("Guyana - Government And Society"). When the new 1992 president was elected, it brought change in the treatment of waste. For a long time, the mindset of citizens was not very conscious of what to do with their trash, as

it was never addressed by officials who controlled it. With the old changes in leadership, there were not ever systems put in place to deal with waste placement so it began to pile up in places where people were. Sometimes against building walls, sometimes thrown to a common dump place in town, waste was being put everywhere.

The Guyanese people consist of a diverse population. The former colony had colonists, natives, slaves, and immigrants, all playing a part in the diverse country that Guyana is today. It hurts Guyana when educated people move out of the country, which happens often due to better opportunities elsewhere. Each woman has an average of 1.89 babies, leading to typical family sizes of four (“The World Factbook:

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Guyana”). The kind of housing they live in is greatly dependent on their income, jobs, and location. Near the capital, there are many nice houses and buildings, whereas in the rural areas there are many less expensive houses. Many that are near the coast are built on stilts for times of floods during the rainy seasons. A family meal can also look very different based on their ethnicity, ancestry, and location. With so many different ethnicities, Guyana has many diverse foods and a unique culture. Many family diets consist of fish and common crops such as root vegetables like cassava, sweet potatoes, rice, plantains, and more. It is very common to purchase at local markets. Cooking can look different in different areas, as well. Many Guyanese have stoves. There are both fire and electric stoves depending on their income and desire for the appliances. Many depend on agricultural jobs with the average gross salary being \$18,537 in U.S. dollars. There are many Guyanese unemployed and who live in poverty. In 2013, nearly two thirds of the population was in poverty and about 29% classified as extremely poor (“Poverty In Guyana | The Borgen Project”). Consistent low incomes in communities and high percentages of people living in poverty have played key roles in the product of waste all over the streets.

Income makes a difference in the food that families can buy and provide. Progress is still being worked on in Guyana regarding malnutrition. According to the Global Nutrition Report, in 2019, 19.7% of children under the age of five were reported to either be overweight, stunting, or wasting, all signs of malnutrition. Adults also face challenges of malnutrition. For women, 39.7% were reported to have either diabetes or obesity, and 32.3% at a reproductive age were reported to have anaemia. For men, in 2019 diabetes and obesity rates were at 21.8% (“Guyana Nutrition Profile - Global Nutrition Report”). This could all be due to not having enough nutritious foods available or affordable and affected by each person’s lifestyle and work. The prevalence of malnutrition signs in youth are higher in rural, inland areas versus in the urban coastline. Children and families in rural areas of Guyana getting nutritious food can make a positive impact on decreasing malnutrition numbers.

Guyana does have education systems that on average teach children for eleven years. Past grade school, there are a limited number of universities. The state schooling is free and required by law until they are sixteen years old. Schooling is not the same for all areas of the state in terms of quality and potential post-schooling. 80% of those who go on to higher degrees of schooling end up moving out of the country, leaving many high-education-required fields with open spots that need to be filled, such as the healthcare field (“Poverty In Guyana | The Borgen Project”). Certain regions in Guyana have more

healthcare services than others. There has been a National Health Plan in place from 2013 to 2020 that includes getting good health care to Guyanese people. There are care centers, some of which are free because of the government and donors, and they provide a range of services. Services and utilities are available for the majority of the people in Guyana, but not all. According to Commonwealth Health Online, 95% of Guyanese have water sources that have been improved lately. About 83.7% had access to bathrooms in 2015 (CIA World Factbook: Guyana). Having electricity and a telephone go at about the same rates, both being present for 80-90% of the population. There are roads available for most of the country, but a lot of them are not paved which is not ideal for transporting food that is grown in rural areas. With such a high poverty rate, families and citizens of Guyana have to work hard to survive, put food on their tables, and work to make their country a better place.

Taking care of the waste in Guyana is very important to taking their country to a higher level. The excessive waste that builds up on the sides of urban streets in Guyana promotes negative risks to the health of people and the environment. Trash build up in towns and villages can promote the growth of bacteria, insect populations, and other animals gathering. The runoff trash could also fall into bodies of water (many rivers and the ocean to the north) and lead to air pollution which can cause other health complications. Doctors are scarce in the country. This makes avoidable illnesses, such as those due to

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improper waste management, that much more of a burden to deal with. There are issues that arise with the incorrect disposal of waste in the rural areas. In the rural areas, a lot of food needs to be transported from where it is produced, processed, and sold. Of the 3,995 kilometers of roadways in Guyana, only 799 kilometers are paved ("The World Factbook: Guyana"). That other 3,196 kilometers of unpaved roads are an issue when produce and goods need to be driven from point a to point b without losing the produce off the vehicle. Many crops are also wasted due to many farmers not having the correct equipment to deal with the entire yield efficiently. The Food and Agriculture Organization of the United Nations did a case study on a popular crop in Guyana, cassava. From harvesting to retail sale, 23% of the physical yield had been lost and the quality of the crop had gone down by about 30 to 40% ("Case Study On The Cassava Chain In The Republic Of Guyana"). These cause much less revenue for the farmer and a round circle of poverty for those who are reliant on a good yield.

Guyana does have action steps in place to improve the situation of proper waste disposal. Trends are currently improving and are expected to continue to. Their government has realized the problem, as well, and is implementing new systems such as their National Solid Waste Management Strategy (NSWMS), which is aimed towards residential urban and industrial areas of the country. Guyana faced a countrywide hardship when it got freedom/independence from its mothering UK in 1966. As they recovered from bad leadership and got their economy going again, people got into a littering mindset due to no governmental regulation around it. People in Guyana who have garbage bins often produce more waste than there is room for disposal of it. Many of their markets also don't have waste containers, so it ends up thrown in rivers or on the roads. As the government's plan with the NSWMS continues, they hope to make the waste system better for the people and environment. Many of their actions will be through recycling, composting, and making other waste useful ("Solid Waste Management.").

Waste management affects all those in Guyana. It affects both men and women. It could pose more of a health risk to women who are pregnant who need to be careful of the health of their young. The elderly and children could be at more risk of health hazards due to spoiled food or waste pile up due to lower immune systems, but overall shouldn't be drastically affected differently than the common population. Enforcing and ensuring proper waste disposal could not only stop decreasing health, but could improve current health. If the percentage of rural food that is wasted could decrease, citizens could get more of the nutritious food that is being grown in their own country - benefiting both public health and economy. High waste disposal could affect certain populations more than others because of unfair job placements. How much money different groups/minorities make could influence where they live, the excessive waste they are exposed to, and what health or life impacts could come from the waste. Even more than affecting human health, the waste affects the environment. It is land pollution to levels of easy sight on some streets. When the waste builds up, it can affect lifestyles and also the ecosystems around. Wildlife could be affected and killed. Depending on what the waste is, it could give off harmful pollutants. If it is food, decomposing it could give off methane, a harmful greenhouse gas. Due to this, having different initiatives for different areas of Guyana could create more positive change in the country.

Guyana is not the first, only, nor last country to face this problem. Greece ranked as one of the countries to waste the least amount of food per capita in 2017 ("Countries With The Least (And Most) Food Waste - IFCO Systems"). One system that they have going is called the Sustainable Food Movement. Their mission is to continue to decrease food waste through educating the public and supporting those who need it to get the job done. Two ways that can make a great difference in Guyana's waste and spoilage situation is to educate the citizens and to assign funding to solve areas of industries that create the most waste. First off, educating the people will make a great difference. A big part of why there is so much waste in the urban areas is because people got used to littering and throwing waste out mindlessly. When there was no

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governmental leadership directing actions towards waste management, it was allowed to get out of hand. Creating a public initiative to educate all of the citizens will not only make a difference in cleaner streets, but will give those in rural areas the knowledge for when they are in urban areas and vice versa. People would become educated on points such as what should be put in their recycling bins, garbage bins, be composted, what to do when they see trash lying on the street, how to prioritize what to eat to prevent spoilage, why they should care for these changes, and more. Youth can be informed when they are in school, and adults can learn through public mail, word of mouth, and phone calls by waste management systems. While there are chances that not everyone would participate in making their country a better place, it will enable many people to make a positive difference with little changes in their life and letting others know they should do the same.

One other solution is to enforce government funding and initiatives for individuals, owners, and businesses to incorporate sustainable waste management into their lives. This could help to support not only urban areas of Guyana but also rural areas which might be missed in other initiatives. Other governments have had success in implementing money-based initiatives to get across something they

wanted to change. For example, Germany's government initiated tax laws that would benefit those who did actions that would reduce greenhouse gas emissions from energy. Their goal is to reach their 2030 climate goal which includes lowering their carbon emissions. Their citizens can do things such as enforcing energy-efficient building and paying for renewable energy resources (like solar or wind energy) to power their homes for a reduction in taxes or not have to face higher taxes for not changing. The implementation encouraged many citizens to make change and has helped them be in line with their goal, which helps the world fight climate change ("German Government Decides Tax Changes for Climate Plan, CO2 Price Details."). Guyana could enforce benefits for starting waste disposal practices and could find businesses to help limit improper waste disposal. This would include the Guyana government hiring businesses to help all aspects of waste management. It could include hiring construction companies to pave more rural roads to reduce food spillage, waste management systems to hire more workers and get more trash trucks, and factories to make durable refrigeration systems for storing food and to make more efficient crop machinery. This initiative could help in a variety of ways. Individuals would be doing their part, businesses involved in the industry could hire more workers to get the jobs needed done (reducing unemployment), the producers would be getting greater yields and more profit, and the economy overall would have more money active. Special points would have to be made regarding what needs to be done in rural versus urban areas. Rural areas could have aims of helping lower crop wastage in the growing stages and urban areas could have more regarding trash disposal and efficient food storage for in homes. This solution would take a lot of planning and funding to be successful, but would pay off in the long run for a stronger, healthier, more efficient country.

These solutions combined could make a great impact on Guyana. In order to get these solutions in motion, passionate and educated people must be hired to plan and manage the project. The group would plan the most efficient ways to educate the public and predict what their goals are. Without informing the public of why the government is starting to make changes, all citizens might not comply with what is starting to be enforced. The people are not going to want to put money and resources into something that does not seem necessary. Once some people support what is going on and the reason for the change, they can encourage their neighbors, family, and friends to change their ways as well. It would be important for the project committee to set up quantitative goals so that the group could track if their efforts are resulting in what they were aiming for. They would also analyze initiatives that are best helping decrease the waste in the country. It would be beneficial for there to be committees for rural and urban planning, as each has to deal with different logistics of waste. This project could ideally be funded by a combination of groups to get the most funds possible, including the government and private donors. Since the government already has

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goals and plans regarding waste management systems, another branch could be set up consisting of the committee hired to plan and manage this project.

Everyone in the country would have a role to fill. Community members could follow what the education initiative tells them is correct and incorrect to do in regards to dealing with their waste. They could also keep the government honest in what needs to be changed. It is important for the public/government relationship to stay honest throughout this project and for the public's voices to be heard and acted upon

throughout, which could be through city discussions or calls to representatives. Volunteer systems could also be set up for those who have jobs that allow more free time and want to help clean up the trash around the cities. The government would have their systems and planning groups to manage all of the efforts going on so that the progress can be tracked and improvements can be made to best help the country. Organizations can do their part by implementing new rules to reduce their own waste, as well as help in the governmental efforts in things like paving roads or taking donations to help fund the efforts. Not everyone would react the same way to this project to clean Guyana for good. Policies could be set for what is allowed to be spent and how decisions are finalized, as well as littering regulations. Many of the people in Guyana have laborious jobs that take a lot of energy. Whether they are farmers, miners, or businessmen, they can get the resources they need to be waste-mindful. This project is sustainable because of the education aspect. Teaching the population how to be responsible with their trash, as well as setting up systems of higher efficiency, can last for generations and generations to come. When Guyanese can take care of their waste properly, their cities and countryside will be more clean and they will get more from their crop harvests. Both of these things will result in people with more energy and more healthy bodies, more capable of putting more energy into further bettering their country and world.

In Guyana, there is a lot of waste. In the United States of America, there is a lot of waste. On the Earth, there is a lot of waste. While Guyana is struggling and working to deal with the waste that is produced within its borders, there are many countries that also are. It is important to know how the waste is going to affect human health as well as environmental health. Solutions need to be tried, refined, and given the time and effort they deserve to make and keep the Earth healthy. Guyana is making progress to get rid of the waste that is harming the country. Educating the citizens and making initiatives to encourage the people to deal with waste correctly could be the next big solution. People working hard and working together will bring the impact that Guyana needs.

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