

LaShondra Gordon
Morrow High School
Morrow, Georgia
Puerto Rico, Renewable Resources

Puerto Rico: Using renewable resources to save the environment and economy

Puerto Rico has 3.8 million people. Known to be one of the most highly populated islands, Puerto Rico is also a commonwealth of the United States. Their capital is San Juan named after their founder Ponce de Leon. They have a republic and similar forms of government to the U.S. Currently 22% of their land is cultivated where they export citrus, coffee, rubber, wheat, maize and rice. The average farm size is about 43 acres. They have a tropical climate mostly year round. However, rainfall is the most prominent between the months of May and December. The months ranging from June to November are known as the hurricane season which is where hurricanes are most likely to occur in that area. Due to the harsh climate produce is harder to maintain. Rain and winds coming at increased speeds can knock seeds or immature product to leave the branch and fall on the ground without growing to its full potential. The recent hurricane season prominently, "Hurricane Maria wiped out about 80 percent of the crop value in Puerto Rico — making it one of the costliest storms to hit the island's agriculture industry, said Carlos Flores Ortega, Puerto Rico's secretary of the Department of Agriculture." (Robles & FerrÉ-sadurnÍ "Puerto Rico's Agriculture and Farmers Decimated by Maria" 2017). Natural disasters like this do not just occur but, they impact. Many lives will be affected and changed forever. Most will be for the worse where norms for some people's lives will be drastically changed. This can be from what some people take minor for like running water or electricity.

Like every other country there are generalizations that speak for the majority of the population. This includes the typical family size and aspects of the family and culture. The family size is about 4 people where almost all those that live there know at least 2 languages. Although breakfast is good their more valued meals are lunch and dinner where they make meals that are native to their culture. They get their produce from local markets or stores like Walmart, Costco, or Kmart where they typically have home cooked meals on a daily basis. The average wage a person makes is around 39,000 annually. ("Average Salary in San Juan, Puerto Rico." *Cardiovascular Technologist Salary*, www.payscale.com/research/PR/Location=San-Juan/Salary.) As more policies are coming into play healthcare is becoming more accessible and affordable as they are adopting some of the American health reforms such as Medicaid and Medicare. In fact, "the US Department of Health and Human Services has initiated a study of Puerto Rico's health care infrastructure including Puerto Ricans' access to health care, the quality of the care received, and patient satisfaction with that care." with a recent depiction of the status of the country's' infrastructure challenges. There was obvious concerns of how Puerto Rico would be able to sustain the systems that are needed for their health so, "the US Congress enacted the Puerto Rico Oversight, Management, and Economic Stability Act (PROMESA) to help address Puerto Rico's fiscal crisis." (Perreira, Peters, Lallemand, & Zuckerman 2017) In addition to adding more familiar US healthcare reforms their education is in a similar system. They have both private and public educational systems. The usual form of transportation is

by car due to the lack of buses. Most families do have access to clean water. Most homes have electricity and telephones. For the average citizen life in Puerto Rico it is very similar to that of American citizens.

In this vastly growing world today we are faced with a surplus of problems. Some of which we have a solution to or at least something that will suppress it for the time being. For Puerto Rico this would be its use of energy sources. At the moment Puerto Rico uses roughly four different sources of energy. These are petroleum, natural gas, coal, and renewable energy. With petroleum being used 51% for energy and renewable resources 2%. Petroleum has proven itself to have a lot of value when using it as energy. With the constant use of petroleum being used for around 50% of energy sources annually with minimal changes. Puerto Rico is seemingly dependent on this energy source. This is an issue that has to be dealt with in a way that is beneficial to the life of all living things. Renewable resources aren't used to its full potential.

Petroleum is one of the main fossil fuels used in Puerto Rico. While the toxins created are less affected from coal burning petroleum still presents itself with a lot of disadvantages. For starters, the job itself of extracting it is a dangerous job and if accidents occur it can leak into the soil, water or oils. When this occurs now nearby plant life is tainted the sea creatures home is toxic and humans lives are put on the line. ("9 Petroleum Advantages and Disadvantages | Navajo Code Talkers") In addition, to it not being a non renewable source it takes quite a while to form taking billions of years so eventually once gone there would be need for another route of energy anyway. Chemicals and materials from petroleum include plastics, pesticides, paints and much more("Petroleum"). However, the use of petroleum causes pollution and damage to the environment. Toxins that are released from the chemicals used in petroleum are harmful for human health and the environment. This can cause an increase in global warming. Gases and chemicals released from petroleum and into the atmosphere causes corruption and an increased deposit of CO2 which makes nature very unbalanced. Petroleum is one of the main sources that deteriorate the environment. Just from forming petroleum to make other things created creates air pollution. Compounds found inside petroleum can create other poisonous chemicals. "The burning of petroleum emits large amounts of carbon dioxide, or greenhouse gas." ("9 Petroleum Advantages and Disadvantages | Navajo Code Talkers")

However, despite the negative effects its enactment petroleum does have good outcomes. This includes the field that it is centered around that has created jobs and opportunities for individuals. Not to mention that most forms of transportation rely on this type of fuel to get around and commute from day to day. Also due to the difficulty of the job makes a great profit. ("9 Petroleum Advantages and Disadvantages | Navajo Code Talkers")

In analysis, petroleum has seen to be a harmful substance to the environment which means that there needs to be ways around using so much of this energy source. So, one possible solution is to decrease the amount of petroleum usage and use more renewable resources. By doing this it would decrease the amount of pollution in the air. With this would have to come with innovations to support this solution, such as using the water currents flowing down the mountains to produce

hydroelectric power. ("National Grid") Doing this would decrease the amount of money spent on electric bills. However the benefits will not show right away, because you would need funding to get them into place. Rather than using petroleum, other resources could be employed such as wind energy. With its surrounding of water, Puerto Rico can also use the currents from the North Atlantic Ocean for energy. Due to the amount of increased wind during hurricane season, the development of wind turbines can be helpful. Of course more use of solar panels would be useful to help with harvesting electricity as well. This would be beneficial to the country as a whole because it could potentially decrease electrical bills for civilians and decrease the amount of pollution in the atmosphere.

By decreasing the amount of petroleum usage would allow for a better quality of life. This would be from the environmental health challenges it causes by lowering it can help with the produce from the country being of good nutrition for human consumption. Making the public aware of health facts that relate to the disadvantages petroleum cause can be a way for people to not want to use it. Getting it published through the news and other media outlets once people hear that companies are using petroleum people are more likely to advocate for lower petroleum usage. Petroleum is a very potent substance and is apart of human intake daily. These are from well known brands such as kraft, pop tarts, fruit snacks, cheetos, pringles, and more! A healthy diet is essential to having a nutritionally balanced life. What most do not know is that some things that we believe are not that bad for you turn out to be worse than you may have initially expected. This is known as petroleum being used in snacks that was mentioned earlier. Where the dye used to make Yellow 5, Yellow 6, Red 40, Red 3, and TBHQ or tertiary [butylhydroquinone](#) comes from harmful oils stemming from petroleum ("5 Snacks Made with Petroleum That No One Should Eat"). These substances and products contribute to food security with some brands seeming to be healthy and beneficial for snacking but, in reality the calorie count is not what consumers should be worried about. Petroleum has not only taken a toll on our environment but, our food choices some we had no idea about. So this knowledge would have to be a factor in keeping the public informed. Just knowing more about the nutritional facts that go along with petroleum will definitely get into the brains of the community.

An organization that can help towards this cause would be the Environmental Protection Agency and the National Pollution Prevention with funds or the necessary tools to build the needed structures to gather electrical power. Also political action committees that are interested in the issue can help as well. The government's role in this has to be shown heavily in imposing plans to conserve the petroleum and use less of it while motivating local companies to use more less harmful and renewable products. Something to maintain this progress would be to track it whether that is reporting the percentages of the sources used for power/ energy to see whether it goes up or down and those numbers should be produced quarterly. Eventually the goal would be to make things to use as less of petroleum as possible. So that Puerto Rico would not be dependent on it. It is a challenge but, is something that is necessary. Puerto Rico already is trying to economically catch up and doesn't need its environment going to waste. This country deserves a better quality of life and a way for them to better use their renewable resources.

In final analysis, we see the surplus amount of petroleum usage in Puerto Rico being over half of their energy source comes from it. Having good benefits but, ultimately bad for the environment. This can be found in the harmful chemicals released in the atmosphere. Like when making other products found in petroleum are not friendly for living organisms. A major negative affect would be contribution to greenhouse gases and global warming. At the rate they are going the air will become less and less safe to inhale making living nearly impossible with worsening quality air.

To conclude, Puerto Rico is a densely populated area of almost 4 million people with an average family size of about 4 people. Where there's closely a 3:1 ration of urban to rural population. Most people live in Puerto Rico's capital San Juan. While the living conditions aren't out of reach for most people, it would be a great addition to the economy if they were able to help living be more accommodating. This claim was made from a dis satisfaction in living expenses. This is with having to always pay an expensive fee for the use of their main energy source (petroleum). So, a solution would be to use more renewable resources that don't harm the environment like petroleum. With an excessive percentage of petroleum use for energy(fifty percent or greater), it would be helpful for their community and surrounding areas that they would decrease the amount of petroleum they use and not be dependent on it. It isn't good to be dependent on an energy source such as this due to the health and environmental risks it causes. Not including the fact it's non renewable. Using people like the Environmental Protection Agency and National Pollution Prevention organization can help monitor progress of the statistics. They also will be able to give expert advice on the situation being that the issue deals with the negative effects on the environment and human health. Another important organization that can aid in this process is the International Union for Conservation of Nature, where they specialize in keeping nature's standards stable ("About." *IUCN*, 18 July 2018, www.iucn.org/about.). We would have to gather a team from the listed organizations to help with the personnel over the environment for the country and test the quality of air and life. Then we configure a reasonable percentage to decrease semi annually and put out necessary legislation for companies and factory owners to abide to and in doing so can lower their property taxes. This could be implemnting a lower percentage of petroleum usage for the renewable fuel standard. Making new state requirements or even having more frequent test levels for emissions any and everything we can manage to take the percentage down. With more awareness of the effects of this source consumers are more likely to take action on things that would do them personal harm. This would be the suggestions of more public transportation and or carpooling. The petroleum that the country saves can be sold to other countries that don't have enough supply of petroleum. So as stated earlier that petroleum has many disadvantages. This can be noted as emitting greenhouse gases, apart of food dye, the environment where it can negatively impact the sea, soil, and oil, and the job itself where the process for extraction becomes expensive and unsafe for human contact.

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