

Trevon Butler  
Booker T. Washington High School  
Tuskegee, AL  
Cuba | Renewable Energy and International Trade

## **Cuba**

Cuba, or The Republic of Cuba, is a long, narrow archipelago island located between the Caribbean Sea and the North Atlantic Ocean, 150 km south of Key West, Florida. The population of Cuba is 11.26 million (2021). Most of the people in Cuba live in large groups. 77% of the population live in urban areas. It's not easy to calculate the average number of people in one household due to the fact that many of the families of Cuba live together, being parents, children, grandparents, aunts and uncles, cousins, nieces and nephews, and any other people they may consider family. It is important to know that some Cubans think that blood doesn't decide whether someone is family or not. Many families live like this because they find it efficient and it helps them to keep each other afloat during hard times. The most practiced religion in Cuba is Catholicism, or Christianity.

Agriculture has been a crucial aspect of Cuba's economy for centuries. Currently, Cuba boasts the highest agricultural growth rate in the Caribbean, surpassing even its counterparts in Central and South America. About thirty percent of land is used for agricultural purposes, giving employment to around twenty percent of the population in Cuba. Cuba's success is attributed to the presence of numerous small regional farms instead of large state companies, allowing for community decision-making at a local level. The average size of these individual farms is 32 acres, equivalent to approximately 24 football fields. Around seventy percent of all agricultural products in Cuba are grown on these farms. 20 percent of their produce can be sold to markets, with the remaining 80 percent being sent to the state.

Sugarcane is a major crop in Cuba. As a matter of fact, sugarcane was so big in Cuba that 7.5 million tons of sugarcane were being produced each year, and about 75% of that was being exported to the Soviet Union. Tobacco is also a commonly grown crop in Cuba. Tobacco is the country's second most valuable crop. Almost 173,000 acres are dedicated to growing tobacco, with the majority being on private farms. In the year 2010, Cuba made a total of \$368 million USD from cigar sales. Furthermore, Cuban farmers cultivate citrus fruits, primarily for export as juices or extracts.

Cuba's tropical archipelago means that solar energy is a highly viable renewable resource that can be utilised in the country's largely agricultural economy. Solar panels can provide electricity for irrigation pumps, farm lighting systems and various other aspects of farming equipment that require power, given that the region gets a good amount of sunlight all year round. Solar-powered water pumps could transform irrigation processes, replacing energy sources that pollute the environment, and potentially rationalising water usage. Utilisation of solar-powered refrigeration units can also increase the lifespan of market produce, thus reducing agricultural post-harvest losses. Proper usage of solar energy at the farm level in Cuba could integrate sustainability, as well as efficiency and productivity of the sector for the country. Proper use of solar power and adaptation to climate change can place the Cuban agricultural economy on sound footing for the future.

Another way Cuba can incorporate renewable energy into its agricultural practices is by using wind energy. Utilizing wind energy could assist Cuba, meet its energy needs and promote environmentally friendly agricultural practices. Electricity can be produced by wind turbines that are placed strategically in breezy areas to power small towns and farms. In particular during dry seasons, wind energy systems combined with irrigation networks can offer crops a consistent supply of water. Additionally, wind farms can help Cuba become more energy independent by increasing the country's energy sources and lowering its dependency on imported fossil fuels.

Biogas production from agricultural waste presents an innovative solution to address Cuba's energy and waste management challenges simultaneously. Organic waste from livestock farms, crop residues, and food processing facilities can be anaerobically digested to produce biogas, which is a renewable energy source rich in methane. Biogas can fuel electric generators, heating systems, and cooking appliances on farms, reducing reliance on fossil fuels and lowering greenhouse gas emissions. Moreover, digestate, the byproduct of biogas production, can serve as a nutrient-rich organic fertilizer, enhancing soil fertility and promoting sustainable agriculture practices.

By using biomass, which can be extracted from sugarcane bagasse, rice husks, and wood residues among others, the transition towards renewable energy resources in Cuba can be implemented. Biomass-aided power plants can generate electricity both for agricultural operations as well as local communities, which makes use of nearby feedstock availability. Along with that, biomass-based biofuel helps to replace diesel fuel for agricultural machines leading to reduction of carbon emissions and improving energy efficiency. The development of such biomass energy infrastructures can provide jobs in rural areas and help the economy to grow while also reducing the dependency on fossil fuels and the need to import gas and oil. This is also helping the environment by

reducing air pollution, promoting better quality of life for the people of the Republic of Cuba.

Embracing solar energy, wind, biogas, and biomass presents viable sustainable alternatives to the prevalent fossil fuel usage. Adopting these energy sources can significantly increase farmer productivity while simultaneously mitigating environmental footprints, thus fostering a balanced ecological approach to agriculture. Moreover, through renewable energy system integration, farmers can establish robust foundations enhancing resilience and adaptability facing climate change adversities. To fully exploit renewable energy benefits in agriculture, Cuba must cultivate supportive policies and prioritize renewable infrastructure investments. These strategic endeavors lay critical groundwork for unlocking transformative renewable energy potentials. Additionally, fostering collaboration between farmers, researchers, and policymakers regarding on-farm renewable implementation best practices can optimize environmental and economic results. Local and national initiatives promoting renewable education and training would also better position agricultural communities to capitalize on emerging renewable opportunities. With coordinated long term strategic vision and commitment from all stakeholders, Cuba's agriculture sector is well poised to become a leader in modeling a productive and sustainable path forward with renewable energy driving growth.

When it comes to international trade, the United States placed an embargo on Cuba. Initially, in 1959 when Fidel Castro seized power over Cuba, the United States did not view Cuba as a threat. However, the United States ambassador at the time, Philip Bonsal, along with other United States officials were having a hard time figuring out what Fidel Castro had planned for Cuba with his newfound power. This started to raise concerns with the United States, causing conflict between the United States and Cuba. Castro turned to the enemy of the United States, the Soviet Union.

Castro seeking help from the Soviet Union was the main reason the United States viewed Cuba as a security threat, but not the only one. The other factor is that Fidel Castro, Che Guevara (Minister of Industries of Cuba), and others encouraged and reinforced revolution throughout Latin America and Africa.

In 1962, president John F. Kennedy set the trade embargo on Cuba. This embargo has been upheld for the last 60 years. Cuba is not benefiting from this embargo either. Due to the fact that Cuba is a small island, Cuba is in a position where it depends on trade to survive. As a result of the complete prohibition on trade with the United States, a 2021 estimate by the Cuban government found that the embargo has cost the country close to \$144 billion dollars.

There is an abundance of positive ways that Cuba and the United States can solve their issues. The main solution is for the two countries to communicate and negotiate with each other. This could involve direct talks, communication by a third party, or international forums. This could be an important step towards normalizing relations between the two countries. It could also help to resolve other issues such as the Guantanamo Bay detention facility, US economic sanctions, and the Cuban exile community. It could also lead to greater economic opportunities between the United States and Cuba.

To go along with the idea of negotiation, promoting cultural, educational, and scientific exchanges between the two countries to foster understanding and goodwill among citizens is another way to achieve peace between the United States and Cuba. This can be achieved by organizing joint projects, the exchange of scholars and students, and collaboration in research. Additionally, both countries should strive to promote tourism and economic opportunities to increase mutual understanding. Both countries should also collaborate to increase public knowledge and understanding of each other's cultures. This can be done through joint initiatives such as festivals and exhibitions, as well as through traditional media outlets. Additionally, both countries should invest in cultural exchange programs to foster dialogue and build relationships. This can help build bridges between societies and lay the groundwork for future cooperation.

Another solution can be a partial lift of the embargo. Gradually ease certain aspects of the embargo, such as allowing specific categories of goods or services to be traded between the two countries. This could include exemptions for humanitarian aid, medical supplies, or agricultural products. The exemptions should be monitored and reviewed regularly to ensure that both countries remain compliant with the terms of the embargo. Along with that, any exemptions should be limited to essential goods and services, and should not include anything that could be used to support military activities.

Cuba can also offer economic incentives to encourage the United States to lift or relax the embargo. These incentives could include discounted or free trade with other countries, increased financial aid to Cuba, and eased visa restrictions. Additionally, the United States could provide incentives such as technical assistance and investment in the Cuban economy. This could potentially lead to increased economic growth and improved standards of living for the Cuban people. It would also foster closer ties between the two countries and increase the potential for political dialogue. These incentives would benefit both countries, as Cuba would be able to gain access to goods and services from the United States, and the United States would be able to gain access to the Cuban workforce and markets. Additionally, the improved relations between the

two countries could lead to increased trade, investment, and tourism, which would further benefit both countries.

Cuba can also take incremental steps towards normalization of relations, building confidence and trust over time. This could involve implementing confidence-building measures, confidence-building measures, and gradually expanding cooperation in areas of mutual interest. This could also include increasing diplomatic contacts and dialogue between the two parties, as well as reducing tensions through peaceful resolution of disputes. Finally, it could include removing restrictive measures and sanctions to facilitate better relations. These measures would help to create a more positive environment between the two countries, making it easier for them to resolve their differences and work together. Furthermore, these measures would help to create a more positive image of the country in the eyes of the international community, making it easier for the country to build relationships with other countries.

Implementing any solution to the U.S. embargo on Cuba will require political will, negotiation skills, and a commitment to constructive engagement from both sides. This will require both parties to work together in good faith and be willing to compromise. It will require the U.S. to end its economic embargo and for Cuba to make progress on human rights. A resolution will require both sides to be willing to find a win-win solution that will benefit both countries.

With these ideas, Cuba could potentially solve any political problems with the United States, which could bring in more revenue for Cuba. This could also be beneficial to the US economy, as increased trade between the United States and Cuba could lead to more American jobs. Additionally, it could help to reduce the United States dependence on foreign oil, helping to reduce energy costs.

By incorporating the ideas of renewable energy, Cuba can become an even more sustainable county, reduce air pollution, and use more sustainable energy. Renewable energy can also provide economic opportunities, such as creating new jobs in the renewable energy sector.

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