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Cuba, Factor 6: Sustainable Agriculture

Cuba: Sustainable Urban Agriculture

Introduction

Visiting Cuba is like walking back in time. Like a place that time forgot, its streets are filled with old cars, crumbling buildings, and a noticeable lack of technology. It is hardly a place where you would expect to find anything innovative or cutting-edge. However, over the past two decades, small family farms and urban gardens have evolved into an efficient method of food production, increasing food security for many of its citizens. Food security is defined by the World Health Organization as “all people at all times having access to sufficient, safe, nutritious food to maintain a healthy and active life.” Sustainable agriculture in Cuba, especially the country’s use of urban food production, has been a key factor affecting food security. Since the majority of Cuba’s population lives in urban areas, it faces the challenge of feeding a growing urban population. Although Cuba is far from being food secure, its use of sustainable agriculture has definitely prevented the country from falling into a food crisis. In fact, some consider Cuba’s alternative methods to grow food as a lesson for the rest of the world in how to live sustainably.

The Republic of Cuba is a tropical island located in the Caribbean Sea about 90 miles off the southern tip of Florida. It is a long narrow island with about two-thirds of its land area that is suitable for farming (U.S. Library of Congress 6). As of July 2014, the population of Cuba is approximately 11.3 million people, about 75 percent of which being urban population (“Cuba”, *CIA World Factbook*). The largest city in Cuba is the capital, Havana, where 20 percent of the total population lives. When Fidel Castro took power in 1959, Cuba became a socialist government. During this time, the Cuban government operated large monoculture farms that were highly industrialized growing mostly sugarcane. The Soviet Union traded with Cuba for sugarcane and supplied the Cuban government with tractors, oil, fertilizers, and pesticides. However, when the Soviet Union collapsed in the early 1990’s, Cuba could no longer receive imported goods to keep its agricultural industry going. Along with the United States trade embargo, this forced the Cuban economy into a crisis (U.S. Foreign Agriculture Service 4). Faced with a severe food shortage, Cuba was forced to focus on more sustainable agriculture such as organic farming and urban gardens as an alternative.

Cuba’s Development Indicators

The average urban family in Cuba is composed of three people (Williams). With high food prices and a housing shortage, it is difficult for Cubans to have large families. However, it is not uncommon for multiple families and generations to live in the same household. Families in Cuba are often multigenerational and about 45 percent of houses are headed by women (World Food Programme 5). The typical diet of a Cuban citizen consists mostly of rice and beans, with some meat, vegetables, and fruits (Funes-Monzote 13). The Cuban government provides its citizens with a monthly food subsidy called a ration book. However, the monthly rations do not meet the people’s food needs, as it only provides about 7 to 10 days’ worth of food (Driggs). According to the World Food Programme, Cubans “must meet 60% of their food needs from their own production or from non-subsidized markets” (5).

For a developing country, Cuba has a very good education and health care system. Education is free for all Cubans from elementary school through college (U.S. Library of Congress 9). In fact, Cuba has one of the most educated populations in the Caribbean. Many courses emphasize food production and agriculture. For example, high school students must spend one summer in the country learning about farming and agriculture (Romero-Cesareo). Healthcare in Cuba is also universal and free to all its citizens. According to the U.S. Library of Congress, “The health profile of the Cuban population is more

like that of a developed country than a developing one”, with low infant mortality and low infectious disease rates (9).

The Republic of Cuba has a “state-controlled” economy that extremely limits employment and wages of its citizens (U.S. Library of Congress 11). Although Cuba provides free education, healthcare, and food subsidies, its wages are very low. According to the U.S. Library of Congress, the typical Cuban citizen earns just enough for a minimal standard of living (15). The national average monthly income in Cuba is 260 Cuban pesos or just \$10 per month (Driggs). In fact, the amount of money that a typical Cuban is allowed to earn is restricted by the government to a maximum wage of \$20 per month (Somin). In the United States, a minimum wage is applied to every job in the country, but in Cuba, most people are not allowed to earn over the maximum wage. This means that most Cubans must spend almost all of their income on food, since the food ration book does not cover what is needed to survive. According to the World Food Programme, the average Cuban spends 60 to 75 percent of their income on food (5). For these reasons, many Cubans turned to urban gardening, producing their own food wherever possible.

Access to purchased food can be difficult in Cuba. In the United States, shoppers are able to buy a variety of food and get everything needed in usually one location. However, in Cuba, grocery shopping involves stopping at many different markets throughout the week trying to find available food. The bodegas are small neighborhood markets where Cubans can buy food and with their ration books (Driggs). The typical Cuban can purchase rice, beans, cooking oil, bananas, and brown sugar with their rations. Milk is available only for children under age seven, and only one-half pound of beef per month is allowed or 1 pound of chicken per month when beef is not available (Driggs). Other places to buy food are the state markets, open air markets, or the black market.

Factor: Sustainable Agriculture

Sustainable agriculture can be defined as “the efficient production of safe, high quality agricultural products, in a way that protects and improves the natural environment, the social and economic conditions of farmers” (“Sustainable Agriculture”). There is no place in the world that practices sustainable agriculture as efficiently as Cuba does. In fact, Cuba is the largest sustainable farming experiment in the world and the first country to practice sustainable agriculture as a nation (Rockwell). Sustainable agriculture in Cuba started after the collapse of the Soviet Union, and Cuba could no longer import oil, fertilizers and pesticides needed to grow and transport food. Faced with a hunger crisis, the people of Cuba had to figure out a way to farm using organic methods. In order to survive, the people began to plant urban gardens in vacant lots, backyards, balconies, and on rooftops in the city. Some people even raised animals inside houses to help the family meet its food needs (Funes-Monzote 12). The Cuban citizens themselves took the initiative to develop sustainable agriculture and it became successful because of the innovations of the family farmer and urban gardeners.

The idea of urban agriculture in Cuba started in Havana and spread to other cities in the country. “Cuba’s urban garden movement was spontaneous. No government officials needed to tell Cubans to grow food” (Rockwell). Urban gardens sprang up everywhere and people began growing a variety of fruits and vegetables without using oil or chemical fertilizers. For example, farmers used organic fertilizers such as chicken or cow manure, compost from household food waste, and vermiculture (the use of worms) to produce soil. Instead of using chemical herbicides, farmers weeded their gardens by hand. Cuban farmers also use oxen in place of tractors, as well as crop rotations, green manuring, intercropping, no-till farming and bio-pest controls (Chaplowe). Urban gardens help to provide healthy food to Cubans and also help protect the environment from harmful chemicals and greenhouse emissions.

Sustainable agriculture also increased with the help of the Cuban government. After seeing the success of the Cuban people using sustainable agriculture, the Cuban government took steps to encourage it, such as: 1) making it legal and free to use vacant land in the city for food production, 2) training citizens in the neighborhoods showing them how to create urban gardens, 3) setting up stores to obtain seed, and 4)

allowing urban farmers to sell some of their produce at farmer's markets (Quirk). The government also started to turn over state-owned land to peasants for sustainable food production. Today, about 75 percent of all land in Cuba is farmed by peasants in privately run cooperatives, however, about 79 percent of all land is *owned* by the government (Patel). Urban gardens and small farmer co-ops produce a wide variety of produce, including vegetables and herbs, roots and tubers, beans, rice, and fruit trees, as well as animals such as poultry, rabbits, swine, cows, and sheep. There are many different types and sizes of urban gardens, such as organoponics, or raised planting beds, small backyard gardens, patio gardens and of course rooftops. Suburban farms around the cities are usually larger, and use organic farming to help supply the city with fresh fruits and vegetables.

Sustainable agriculture is an important factor in Cuba because it helps increase agricultural productivity. "In Cuba, increasing food production is considered a matter of 'national security' because the country spends more than \$1.5 million per year on importing 80 percent of the food it consumes" ("Cuba", *Latin American Herald Tribune*). Low agricultural productivity affects the typical Cuban family by causing high food prices. Because Cuba imports most of its food, families have to pay more for food and are often affected by food shortages. Urban agriculture has played an important role in food security because more food is available and is more affordable. Today, it is estimated that 70 percent of all fresh fruits and vegetables consumed in the cities of Havana and Santa Clara are grown in urban gardens (Sickle).

Increasing sustainable agricultural practices in Cuba also has economic and social benefits. Overall, "350,000 new well-paying jobs (out of a total workforce of 5 million) were created in urban agriculture nationally" (Fisher). By improving sustainable urban agriculture in Cuba, economic development will grow and improve the quality of living throughout the country by providing more jobs for citizens. In addition, urban agriculture has had a positive effect on society by providing a sense of independence and potential. "The popular gardens have helped to build community pride; they clean up vacant urban spaces that had once been local dumps, replacing these eyesores with greenery" (Chaplowe). Organic farming has also helped Cubans to have access to a variety of healthy foods. This has helped to reduce the rates of heart disease, diabetes, and obesity (Rockwell). The success of sustainable agriculture can be measured through the United Nations Millennium Development Goals (MDGs). For example, Cuba was able to meet its goal of halving the number of its people suffering from hunger. According to the World Food Programme, "Cuba is one of the most successful countries in achieving the MDGs and was ranked 44th of the 187 countries on the 2014 human development index" (5).

Barriers Affecting Sustainable Agriculture and Food Security in Cuba

Economic

In spite of Cuba's success with sustainable agriculture, the country is still very vulnerable to food insecurity. The main problem is that Cuba still has a low agricultural productivity rate. Although Cuba's urban gardens produce the majority of fruits and vegetables for its cities, Cuba is not totally self-sufficient for all its food needs. For example, Cuba imports 70 to 80 percent of its food needs from other countries, paying high global food prices and transportation costs (World Food Programme 5). This is especially the case for grains such as wheat and rice. According to Raj Patel, Cuba's production of rice, beef, and milk are still inefficient (170). This makes Cuban citizens very vulnerable if global food prices rise because they would be unable to afford food; and because Cubans have a limited income, any increase in food prices would put most Cubans at risk for food insecurity.

Political

Although Cuba has made some reforms that support sustainable agriculture, there are still many government barriers affecting sustainable agriculture. For example, Cuba's socialist government owns most of the land and rights to the crops produced, which is highly inefficient because of government bureaucracy. The government still controls large amounts of land in Cuba and there is a great quantity of farmable land that is idle. This contributes to low agricultural productivity as much of this idle land could be used to produce crops. In 2008, an estimated "51 percent of the total arable land on the island was

either idle or poorly used” (“Cuba”, *Latin American Herald Tribune*). Another problem is government inefficiency along the supply chain in distributing food to its people. According to Dr. Fernando Funes-Monzote, a renowned agronomist in Cuba, about one half of the produce grown in Cuba is wasted through government processing, transportation, and distribution of food.

Another potential issue is the possibility of lifting the United States trade embargo against Cuba. Recently, the U.S. has started to end trade sanctions which will mean greater trade between the U.S. and Cuba. Although increased trade will help Cuba in many ways, some farmers wonder what will happen if cheap oil and chemicals become available in Cuba again. Some farmers worry that the government will return to industrialized agriculture and take back the land that it had allowed them to farm (Sickle). No one knows for sure what will happen when the embargo is lifted, but for now the Cuban government is supportive of sustainable agriculture.

Social

Another obstacle to increasing productivity in Cuba has been a lack of knowledge among farmers about sustainable agriculture practices and resources (Sickle). The Cuban people have been mostly isolated from the rest of the world because of a lack of information technology. Communication and information sharing is difficult. For example, internet access is only available to only about 5 percent of Cubans, one of the lowest rates in the world (U.S. White House Press Office). The only way to get Internet access for most Cubans is to visit a government-run Internet location and pay \$5 per hour – a cost too expensive for most citizens (Marshall). This lack of information limits the spread of sustainable agriculture. Currently, information is spread through word-of-mouth, but if internet and telecommunications were available to all Cubans, then sustainable agriculture could be greatly expanded by increasing communication.

Environmental

One potential problem that may affect sustainable agriculture in the future is climate change. Because of Cuba’s geographical location, it is very vulnerable to tropical storms and natural disasters. As an island nation, Cuba is often impacted by hurricanes, high winds, and severe droughts. “Since 2008, losses from climate hazards have exceeded USD 20 billion, with significant impacts on the economy and food security. Approximately 35 percent of economic losses from hurricanes were in the agriculture sector and 5 percent in the food production sector” (World Food Programme 6). In addition, water scarcity is a problem in Cuba, especially in the cities. As a tropical country, you would expect there to be plenty of water in Cuba. “However, 60% of this rain falls during the wet season, flooding the country for a few short months, then running off into the ocean and staying away till the next summer” (Gerlach). Severe storms and droughts are expected to worsen in the future with the increase in global warming.

Recommendations

For Cuba to address these challenges and become food secure in the future, there are several recommendations that will help. The first one is to increase support of small family farmers and urban gardeners so that more food can be grown locally and Cuba can reduce its reliance on food imports. This will help make the Cuban people more self-reliant and more secure economically. This support should include training and resources that encourages farmers to learn about sustainable agriculture methods and encourages them to get involved. One organization in Cuba that has had great success with this is the National Small Farmers Association (Asociación Nacional de Agricultores Pequeños or ANAP). The ANAP uses a *Campesina a Campesina* (Peasant to Peasant) method of spreading sustainable agriculture in Cuba. According to Patel, the *Campesina a Campesina* movement “offers perhaps the most profound example of decentralized learning and sharing, involving farmers travelling and sharing their ideas, seed, culture and history” (171). ANAP is successful because it is run by the peasants themselves and is a good example of a local project that could be scaled-up to help spread sustainable agriculture in Cuba. A second recommendation is to improve technology and internet access, allowing Cubans to gain and share knowledge of sustainable agriculture. By improving telecommunications and access to the internet, Cuban citizens will be able to communicate their ideas with each other and gain knowledge shared by

those around the world. Another idea for improving communication and information-sharing is through education and research exchange programs. For example, universities in the U.S. and Cuba could work together on agricultural research and exchange students. Since the U.S. trade embargo is easing, there should be more opportunity for students to interact with each other and participate in student exchanges. This way both the U.S. and Cuba could mutually benefit by learning from each other.

Another recommendation is to encourage the use of agricultural innovations such as biotechnology. Cuban scientists should be supported by their government to research genetic engineering of plants that would be more resistance to climate change (Patel). Other innovations such as hydroponics and rainwater catchment systems would also be useful in Cuba. Hydroponics can help solve the limited land problem in the cities; and rainwater catchment systems can help with water scarcity by capturing rainwater during the wet season, storing it, and then using it later in times of drought. Another idea would be to encourage citizens to use food preservation methods such as drying and canning. According to Gretchen Gerlach, these methods are not common in Cuba's urban areas and could be expanded to reduce food waste. These ideas could help increase yield and also increase the amount of food available after the growing season has ended. It will be important to get the community involved to support and adopt these ideas.

A final recommendation is reform of government policy. In order to increase productivity, Cuba needs to get more land into the hands of small farmers and reduce the amount of idle land. According to Greg Watson of The Boston Globe, "Cuba, for its part, should go even further with land reforms by retiring its usufruct system and offering cooperatives control of the land they farm, instead of just free use". This will help the peasants to know that their government supports them and will not later change its mind. In addition, there needs to be less government control on farmers' produce and more opportunities for farmers to sell directly to consumers. Small farmers should be allowed to sell what they grow and keep what they earn. This will motivate small farmers to get involved and provide an incentive for them to participate. In addition, small farmers should have more control over food distribution and transportation. This will help prevent food loss and waste caused by government bureaucracy.

To implement these recommendations, it will require that Cuba's government give up some of its control in food production. But as Patel suggests, "the main engine of change hasn't been the Cuban government – it has been the Cuban people demanding change from their government" (171). Therefore, it will be necessary for there to be a strong *Campesina a Campesina* movement led by the peasants themselves. Communication and collaboration between government and communities are the keys to developing sustainable agriculture (Martin). There will also need to be cooperation between Cuba and the U.S. as trade expands. For example, U.S. policies "should explicitly promote Cuba's private sector cooperatives and make them eligible for all incentives relevant to private businesses" (Watson). International organizations could also help Cuba by funding important projects such as biotechnology research or telecommunications technology that could help expand sustainable agriculture in the country.

Conclusion

Sustainably feeding more than 9 billion people by the year 2050 is one of the greatest challenges of our generation. The rise in urban population, effects of climate change, and limited amount of energy resources are important factors that make sustainable agriculture necessary to feed the global population. Although Cuba still faces many challenges, its use of sustainable agriculture and urban gardens has become a model to the rest of the world. The most important lesson of Cuban sustainable agriculture is that it is led by the peasants themselves. Supporting small farmers and groups that help organize communities are necessary to expand urban agriculture worldwide. When the people are given the resources and empowered to make decisions themselves, great things can happen.

Works Cited

- Chaplowe, Scott G. "Havana's Popular Gardens: Sustainable Urban Agriculture." *WSAA Newsletter* (Fall 1996): n. pag. Reprinted with Permission by: *City Farmer, Canada's Office of Urban Agriculture*. 1996. Web. 9 Feb. 2015.
- "Cuba." *CIA World Factbook*. Central Intelligence Agency, 20 June 2014. Web. 9 Feb. 2015.
- "Cuba Government Opens 3.2 Million Acres of Idle Land for Individual Use." *Latin American Herald Tribune*. Latin American Herald Tribune. 30 Oct. 2011. Web. 22 Feb. 2015.
- Driggs, Eric. "Food Security and Nutrition in Cuba." *Focus on Cuba* 47 (2003): n. pag. University of Miami: Cuban Transition Project. 11 Sept. 2003. Web. 9 Feb. 2015.
- Fisher, Andy. "The Exceptional Nature of Cuban Urban Agriculture." *Civileats.com*. Civil Eats, 21 Apr. 2010. Web. 19 Feb. 2015.
- Funes-Monzote, Fernando. "Towards Sustainable Agriculture in Cuba." *Campus.usal.es*. Universidad de Salamanca, n.d. Web. 19 Feb. 2015.
- Gerlach, Gretchen. "Modern Expressions of Urban Agriculture in Havana, Cuba." Web blog post. Cubaurbanagriculture.blogspot.com, 2012. Web. 11 Apr. 2015.
- Marshall, Serena. "This Is What It's Like Using the Internet in Cuba." ABC News, 31 Mar. 2015. Web. 14 June 2015.
- Martin, Andrew. "A Different Kind of Revolution – What We Can Learn From Cuba." *Collective – Evolution.com*. Collective Evolution, 2 Nov. 2014. Web. 14 July 2014.
- Patel, Raj. *Stuffed and Starved: The Hidden Battle for the World Food System*. Brooklyn, NY: Melville House Publishing, 2012. Print.
- Quirk, Vanessa. "Urban Agriculture Part I: What Cuba Can Teach Us." *Arch Daily*. ArchDaily, 24 May 2012. Web. 20 Feb. 2015.
- Rockwell, Paul. "'Gone Tubin': Let's Learn From Cuba About Sustainable Agriculture." *Contra Costa Times*. Contra Costa Times, 25 Mar. 2015. Web. 14 July 2015.
- Romero-Cesareo, Ivette. "Research Trip: Sustainable Agriculture and Urban Gardens in Cuba." Web blog post. *Repeatingislands.com*. Repeating Islands, 10 Feb. 2012. Web. 9 Feb. 2015.
- Sickle, Alexa van. "Viva la Revolución: Cuban Farmers Regain Control Over Land." *The Guardian*. The Guardian, 11 Mar. 2014. Web. 9 Mar. 2015.
- Somin, Llya. "Life Under Cuban Communism." *The Washington Post*. The Washington Post, 13 May 2014. Web. 21 Feb. 2015.
- "Sustainable Agriculture." *SAIplatform.org*. Sustainable Agriculture Initiative Platform, 2010. Web. 14 June 2015.
- United States. Foreign Agriculture Service. USDA Office of Global Analysis. *Cuba's Food & Agriculture Situation Report*. March 2008. Web. 19 Feb. 2015.

United States. Library of Congress. Federal Research Division. *Country Profile: Cuba*. September 2006. Web. 9 Feb. 2015.

United States. The White House. Office of the Press Secretary. *Fact Sheet: Charting a New Course on Cuba*. 17 December 2014. Web. 12 July 2015.

Watson, Greg. "Is Cuba the Future of Farming?" *The Boston Globe*. The Boston Globe, 15 Apr. 2015. Web. 14 July 2015

Williams, Carol J. "The Shrinking Cuban Family." *Los Angeles Times*. Los Angeles Times, 16 May 2007. Web. 10 Feb. 2015.

World Food Programme. *Country Programme Cuba 200703 (2015-2018)*. Rome: World Food Programme, Agenda Item #7. 6 Nov. 2014. Web. 19 Feb. 2014.

World Health Organization. *Trade Glossary: Food Security*. 2015. Web. 12 June 2015.