

**Sobreviviendo a Floreciendo: Insights on Urban Agriculture in San Juan, Puerto Rico  
From the Women Immersed**

By

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### **Abstract**

It is widely known that the majority of humans throughout the world taking part in urban agriculture are women (FAO, 2013). However, not enough is known about *why* the majority of the humans taking part in this project are women; What are their experiences, the benefits and challenges they encounter, the significance of the urban farms, what approaches they use for their farming, and how urban agriculture benefits their communities in the face of a diminishing local agricultural production. Moreover, this research focuses on Latina's because Latina's are important fixtures of food systems throughout the world.

Through urban agriculture, women in Puerto Rico are creating a resistance to the import-oriented agricultural system their leaders continue to perpetuate and support. Since the 1960's Puerto Rico has been importing a majority of their food, in 2017 it was estimated that the archipelago imported 90-95 percent of their food (Carro-Figueroa 2002; Robles & Sandurani, 2017). As a result, the few urban farms (*huertos urbanos*) provide some of the only locally produced fresh produce for Puerto Ricans. Dependency theory supports the idea that the colonial relationship between the United States and Puerto Rico maintains the archipelago dependent on importing goods from the United States and the archipelago serves as tax-exemption paradise for American businesses.

In July 2019, I visited Puerto Rico during this time I interviewed nine women who are involved in urban agriculture in different capacities: volunteers, project implementers, managers, and professors.

The overall objective of this research was to understand:

- The role that *huertos urbanos* play in the lives of women and the communities

The research questions asked in order to uncover this were:

- What are the women's lived experiences being involved in *huertos*?
- What are some of the challenges and benefits experienced by women involved in *huertos*?
- What is the significance of these *huertos* to the women involved?
- What are women perspectives and experiences with the Puerto Rico food system?
- What is lost or could be lost in the event of natural disaster, in relation to the *huerto*?

The findings demonstrate that many women really enjoy urban farming and that this activity provides fresh, healthy, and safe produce for their families and communities. Local consumers are eager to buy produce grown in Puerto Rico; however market insecurity and smaller production makes this difficult for urban farmers. Local *huertos* sell their produce at much lower prices than the grocery stores. Almost all the women farmers experienced a decline in participation of volunteers a few years after the establishment of the *huertos* and even more after Hurricane Maria. However many women described that the *huertos* are very important for the community, as a space for food cultivation and production as well as community gathering center. Through urban agriculture, women in Puerto Rico are creating a resistance to the import-oriented agricultural system their leaders continue to perpetuate and support.

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## Introduction

Urban and peri-urban agriculture is defined as the growing of horticultural trees, food, other agricultural products, and raising livestock within the built area or the fringes of a city by the Resource Center for Urban Agriculture and Forestry (RUAF, n.d.). Urban agriculture is a system that people living in urban areas use to increase their access to fresh, healthy, and safe food. The Food and Agriculture Organization of the United Nations (FAO) found that in 1999, 800 million people globally were engaged in some sort of urban or peri-urban agriculture within and surrounding urban boundaries (2014). Per the FAO, 3.5 billion people are currently living in cities and by 2030 that number is estimated to be 5 billion (United Nations Sustainable Development Goals, n.d). Specifically, in Latin America and the Caribbean, the urban population has increased to almost one billion, becoming the most urbanized region in the world (FAO, 2014). Urban poverty has remained high, as 80 percent of the population of this region live in towns and cities (FAO, 2014). The FAO predicts that of the urban poor, women, and children are particularly vulnerable to food insecurity due to their dependence on food purchases and variations in food prices (FAO, n.d.). Food insecurity can also be a result from a diminishing agricultural sector and importing the majority of food consumed, much like in Puerto Rico. Further more, not enough is known about strategies used, especially by Latinas, to grow their own foods.

Puerto Rico is an archipelago in the Caribbean Sea (Mathews, Wagenheim, Wagenheim, 2020). It is a self-governing Commonwealth of the United States (Mathews, Wagenheim, Wagenheim, 2020). In 2019, it was estimated that 3,193,694 people lived in Puerto Rico (United States Census,2020). Specifically, in the San Juan Municipality, there were an estimated 318,441 residents, which is 10 percent of the overall population.

(United States Census, 2020). Approximately 93.6% of the Puerto Rican population lives in urban areas (FAOSTAT, 2018).

This high urban population exerts pressure on the agricultural food system, as well as other industries. Currently, Puerto Rico imports an estimated 85 percent of their agricultural products (Robles & Sadurini, 2017). Economic development focusing mostly on manufacturing caused many Puerto Ricans to move from the countryside to cities for jobs. This resulted in Puerto Rico importing the majority of its food supply over time.

Despite economic development and having relatively higher social and economic conditions in comparison to other Latin American and Caribbean countries, Puerto Rico has high levels of poverty and food security (Mathews, Wagenheim, Wagenheim, 2020). It is estimated that the median household income in Puerto Rico from 2014-2018 was \$20,166 (United States Census, 2020). Comparatively, the U.S. state with the lowest median household income, Mississippi, was \$43,567 (United States Census, 2020). In addition, approximately 43 percent of people in Puerto Rico live in poverty (United States Census, 2020). In 2015, it was estimated that 32 percent of Puerto Ricans over the age of 18 faced food insecurity (Santiago-Torres et al., 2019). In comparison, in 2018 the United States Department of Agriculture found that 11.1% of households faced food security at some point during the year (USDA, 2018). This number is an average and communities of color experience food insecurity at a much larger scale. In 2018 the USDA found that 22% of black households and 16% of Hispanic households faced food insecurity; Pardilla and colleagues (2014) found that 76% of their sample size in the Navajo nation experienced food insecurity (Coleman- Jensen A., Gregory, C., & Rabbitt, M., 2019). Gender is another way in which food insecurity differs in Puerto Rico and the United States. Researchers



found that Puerto Rican women faced larger rates of food insecurity (47.6%) than men (38.7%) (Santiago-Torres et al., 2019). In the United States, women also face larger rates of food insecurity than men, however currently the data is not separated by race, we can expect that women of color to face higher rates of food insecurity due to the already high prevalence of food insecurity in marginalized communities.

Another form of food insecurity marginalized communities face is food deserts. Generally speaking a food desert is defined as a neighborhood that lacks access to healthy food sources and may have higher presence of liquor stores and fast food options (USDA, n.d.). Food deserts are also common in marginalized communities, for example on average residents of the Navajo Nation drive on average 3 hours for groceries (Partners in Health, 2018). This means that these communities have a general sense of instability when it comes to food, they need to carve out 3 hours of their day to go and acquire groceries, if they don't they may not have anything to eat. Similarly Puerto Ricans also face a general sense of instability and vulnerability due to the high volume of food imports. (Santiago-Torres et al., 2019) This instability is generated from people not being secure in the quantity of products available at grocery stores. In addition, the only way of getting any products into Puerto Rico is on airplanes or on ships so if something happens to airports or docks, food availability in Puerto Rico is threatened (Irizarry-Ruiz, 2016). After Hurricane Maria, Puerto Rican airports and ports were severely affected. The airport terminals flooded and there was debris on the runways, ports didn't immediately open and once they did, they were not able to work at capacity due to lack of fuel, affected roads, and lack of labor (Dorsey, 2017; Meyer, 2017). This means that not only were people not able to get food but they were also not able to drive to stores, hospitals, and other essential services due to the

lack of fuel and affected roads. The loss of jobs means that people had no idea when, where, and how they were going to get their next paycheck.

Although unknown, we can expect like other disasters, that after Hurricane Maria, people experienced greater rates of food insecurity. The Survey of Food Security in Puerto Rico took place in 2015; 2 years before Hurricane Maria. Orville M. Disdier, Executive Director of the *Instituto de Estadísticas*, predicted that in the months directly after Hurricane Maria, rates of food insecurity were even higher (Vera Rosado, 2019). It is clear that Puerto Ricans face higher rates of food insecurity compared to the average US household. In addition, this state of food insecurity has more than likely increased after Hurricane Maria. It is likely that the gendered effects of food insecurity remained the same after Hurricane Maria, with women being more food insecure than men. This gendered effect of food insecurity before and after Hurricane Maria is important because this highlights the vulnerability that women face in society before and after disasters. For example, women who are single mothers will be disproportionately affected after a natural disaster in comparison to a nuclear family of 4. In Puerto Rico this is further stratified because women in Puerto Rico are more likely to be the primary earners in their families. Colón-Warren (2010) argues that the employment of Puerto Rican women has increased autonomy, equity, and shifts in gender roles, however it has also resulted in more women becoming the primary earner even if the woman is married. This shift in primary earner status does not typically change a woman's workload at home resulting in more work and pressure for women in Puerto Rico (Lyon, Mutersbaugh, & Worthen, 2016). However, in her work, Colón-Warren (2010) found that many women valued their jobs for other social

benefits such as an increased sense of personal worth, meeting people, and socializing with peers.

It is important to note that while development strategies, such as manufacturing and pharmaceuticals, in Puerto Rico did improve the status of women and were not as effective as people hoped. The development of Puerto Rico's economy in the 1940's and well into the 1960's was focused on manufacturing and factory work. The work available to women in these jobs was low paying and used to "cushion the impact of consequent poverty and social inequity" (Colón-Warren & Alegría-Ortega, 1998). Women experienced poverty and great social inequity after development projects because these projects were implemented with hopes that they would improve the economic situation in Puerto Rico as a whole, and not solely focused on the lives of most vulnerable people in society. The shift to a mechanization-based economy opened up many job opportunities for women that required low-cost labor and the dexterity of female workers (Colón-Warren & Alegría-Ortega, 1998). However, these job opportunities did not necessarily mean these were high quality jobs. Most of the jobs being occupied by women are at lower levels of administrative and professional sectors, continuing and perpetuating gender inequity (Colón-Warren & Alegría-Ortega, 1998). This inequity is increased for less-educated men and women who do not have the training to work in high-tech and financial services sectors that are becoming increasingly popular in Puerto Rico (Colón-Warren & Alegría-Ortega, 1998). It is also important to note that the current debt crisis and austerity measures taking place in Puerto Rico put women in an increased vulnerable position. In 1998, Colón-Warren and Alegría-Ortega found that reductions in government employments resulted in more women being affected than men. One important idea that

Colón- Warren and Alegría-Ortega (1998) point out is the social and economic importance of domestic work and the extra work burden that women must endure when they enter the workforce. While urban and peri-urban agriculture will not be a remedy for all poverty issues, it can be used as a method to help women generate extra income for themselves and provide healthy food for themselves and family and perhaps increase empowerment.

Herein lies the importance of urban and peri-urban agriculture: when countries face large rates of food insecurity, urban agriculture can be used to provide people with not only fresh food but also the opportunity to sell that food. It is widely known that the majority of humans taking part in urban agriculture are women (FAO,2013). However, not enough is known about *why* the majority of the humans taking part in this activity are women. Specifically what are the experience of minority women: Latinas, Black women, Indigenous women, women in the developing world, and low-income women. We don't understand their experiences, the benefits and challenges they encounter, the significance of the urban farms, and what is or could be lost in the event of a natural disaster. Their experiences of these women will be far different than those of a white women living in a country like Belgium due to race, gender, and class structures. Furthermore, this research centers the experiences of Latinas because Latinas are important fixtures at every part of our food system.

This research seeks to uncover the experiences of women in San Juan, Puerto Rico involved in urban agriculture. This research was inspired by the work that Dr. Maria Calixta-Ortiz and her team did on their *Guideline for The Development of Community- Based Urban Orchards in Puerto Rico (2018)*. Furthermore most of their research was before Hurricane Maria and also didn't address gender issues in urban agriculture.

First I will review relevant literature on urban agriculture, Puerto Rico, and gender and disasters. Then I will go over the theoretical framework that is guiding this research. Following this I describe my positionality and how that influences my research. I will then describe the methods used to conduct the research. Lastly, I share my findings and conclude with recommendations.

## Literature Review

### Puerto Rico

Puerto Rico has been part of the United States since 1898, when the United States acquired the archipelago at the end of the Spanish-American War (Carro-Figueroa, 2002). Puerto Rico's population follows similar trends throughout Latin America and the Caribbean in that most people on the island live in urban areas. In fact, 93 percent of the population lives in urban areas (FAO, n.d.). Approximately 10 percent of the population lives in the San Juan Municipality.

Puerto Rico produced a substantial amount of its own food up until the 1950's (Carro-Figueroa, 2002). After the 1950's, Puerto Rico's agricultural production decreased as the economy shifted towards other sectors. Section 936 of the Internal Revenue Code was created in 1976, exempting US companies from paying federal taxes on profits earned in Puerto Rico (Meléndez & Venator-Santiago, 2018). By the 1990's pharmaceutical and manufacturing were staple job providers on the island, replacing agriculture and Section 936 worked as envisioned (Meléndez & Venator-Santiago, 2018). In 1996, a 10-year phase out of Section 936 began, in order to support small businesses (Meléndez & Venator-

Santiago, 2018). When Section 936 was in effect, the economy grew at a steady pace up until the phase out period (Meléndez & Venator-Santiago, 2018). A recession soon followed and Puerto Rico continues to be in a recession to this day.

During this time period, as manufacturing increased throughout the island, so did food imports. In 2017, Puerto Rico imported 85 percent of their food (Robles & Sadurní, 2017). In 1938, the island still produced 65 percent of the total quantity of food consumed (Carro-Figueroa, 2002 in Hill and Noguera, 1940 ) and in 1951 there was slight decrease to 59 percent of the total quantity of food consumed was grown in Puerto Rico (Carro-Figueroa, 2002 in Nazario & Diaz-Cruz, 1952). In 1980, the production of food consumed on the island took a sharp decrease to 30 to 40 percent (Dietz, 1982). It is without a doubt that as Puerto Rico turned towards a more industrialized economy there was a shift from agricultural production in the country to manufacturing and factory production. Dietz (1986) writes “Yet, the choice need not have been either agriculture *or* industry; it could have been a mix of agriculture *and* industry, and of industry *in* agriculture, along with selective manufacturing”. This dismissal of the agricultural industry is still reflected today in the low number of farms in Puerto Rico and the percentage that agriculture makes of the total GDP. According to the 2012 Farm Census Puerto Rico there were 13,159 farms in 2012, a decrease from 15,745 farms accounted for in 2007 (USDA, 2012). This is perhaps due to the economic stagnation on the island with many people are moving to mainland United States or urban areas in Puerto Rico. Most farms in Puerto Rico are smallholder farms; 39 percent are less than 10 cuerdas (1 cuerda = .97 acre) and an additional 21 percent are less than 50 cuerdas. There are 12,066 farms in Puerto Rico where men are the principal operators and 1,093 in which the principal operator is a woman (USDA,2012).

The economic shift on the island has had a significant impact in the industries that women primarily work in to this day.

## Urban and Peri-Urban Agriculture

Urban and peri-urban agriculture (UPA) can be an important technique used to help feed the growing population. As the global population becomes increasingly urbanized, solutions to feed a growing population are needed. UPA products are normally perishable yet high value and include products like vegetables, mushrooms, eggs, and protein sources (De Zeeuw et al., 2011). There are concerns that UPA has the ability to compete with rural agriculture, however they each have distinct characteristics: UPA produces more vegetables and fruits while rural agriculture produces most of our food staples such as corn or wheat (Dubbeling et al, 2017). Some of the positive results (Zezza & Tasciotti, 2010) found from urban households engaged in UPA are: food security, diverse diet, and increased vegetable consumption in comparison to households not engaged in UPA.

UPA is also beneficial for neighbors of folks involved in UPA because farmers often sell surplus in their communities (De Zeeuw et al., 2011). However, in their research Zezza and Tasciotti (2010) found that income generation from UPA was only significant in African countries and the poorer populations in Nepal and Vietnam. Warren and colleagues (2015) found that UPA was common among low-income households particularly in times of crisis or shock. UPA is an activity in which poor urban households are disproportionately represented, due to its ability to generate quick income (Zezza & Tasciotti, 2010). Urban agriculture has been opposed by national and local authorities over concerns of health and environmental risks that community members might be exposed to (De Zeeuw et al., 2011).

The main areas of concern are contaminated water and the use of agrochemicals in close proximity to humans. Economically, UPA may not have the largest impact on a household, but it still remains a survival strategy for the urban poor (De Zeeuw et al., 2011).

UPA can be designed in a way in which it can be a public good and beneficiaries are not excluded (De Bon et al., 2008). UPA normally utilizes land that otherwise would be considered undesirable such as land under overpasses or land that has been abandoned (Kaufman & Bailkey, 2000). In this way UPA increases the use of land in cities that otherwise would not have any outputs, physically or economically. Besides physical or economical outputs, UPA projects also create other intangible valuable things: sense of community and a place to gather. In addition to the nutritional and economic impacts that UPA has on communities, it also plays a role in the inclusion of vulnerable groups of society (elderly, refugees, women) with which they can generate the economic capital that may result in produce, confidence, and entrepreneurialism (Bailkey et al, 2007). Many UPA publications mention gender in passing, however none of them embark on a deeper understanding as to why women make up the majority of people involved in UPA. This is why research centering the experiences of women involved in urban agriculture is important and needed, specifically in lower-income countries.

## Urban agriculture and Latin America

Urban and peri-urban agricultural projects vary in size, scope, and goals throughout Latin America and the Caribbean. Taguchi (2015), writes that, in Latin America, UPA grew out of a necessity for food security and each country has developed policies that would best serve their country. The UN FAO wrote a report on UPA in Latin America and the Caribbean



titled, “*Growing Greener Cities in Latin America and the Caribbean*”. They surveyed 23 out of 27 countries in the region in 2013. In their research, they found that UPA is common throughout the region, noting that “20 percent of households in Guatemala practice UPA, 50,000 families in Bolivia are food producers, and 8,500 families in Colombia grow some of their own produce” (FAO, 2014). They found that family gardens are common in countries throughout the Caribbean and in urban areas of Colombia, Ecuador, Nicaragua, and Peru (FAO, 2014). Aside from growing fruits and vegetables, some urban farmers also raise small animals as a source of protein. In their report, the FAO (2014) notes that urban farmers come from a variety of different backgrounds but most are low-income.

Despite the popularity of UPA, there is a lack of UPA policy in the Latin American region. Out of the 23 countries surveyed only 12 had policies that explicitly promote UPA; 8 of those were in the Caribbean (FAO, 2014). The countries were not explicitly named and neither were the extent of those policies. In Quito, Ecuador, Clavijo and Parades (2015) found that urban farms that are a part of the city run program AGRUPAR (*El Proyecto de Agricultura Urbana Participativa or The Urban Agriculture Participation Project*) had higher rates of cultural adaptability and more knowledge on organic farming than other urban farms. They predict that this is because AGUAPAR provides more technical support for its farmers (Clavijo & Parades, 2015).

One of the main goals of urban agriculture is to increase food security in urban areas. Dubbeling and colleagues (2017) found that nearly 50 percent of products grown were sold in farmers markets away from producers. While it is important that urban farmers have the opportunity to generate extra income from their gardens, it is important that they first ensure their own food security. Successful UPA projects are characterized by

farmer-to-farmer training, considering the local people's opinions, and frequent trainings for urban farmers (Franklin, 2010; Lovo, Falcão, & Lopes, 2015; Joshi & Velasco, 2015). It is important for project organizers to emphasize to participants the importance of increasing food security and availability to the community before they use it as a means to generate income. In addition, participants have the ability to pass on generational and communal knowledge of working with the earth. UPA projects can range from individual plots at home to community gardens. Successful ones are ones in which local people's opinions and needs are considered and catered to. Additionally, the sustainability of the project is assured when participants teach other members of the community the skills they learned through the project. This way, a diverse number of community members, including women, can start their own urban gardens.

### Urban and Peri-Urban Agriculture and Women

Many UPA projects have great participation rates amongst women. An FAO report found that, in the majority of projects they observed, most of the participants were women, even if the projects were geared to the community at large (2014). Women-led urban farms totaled 90 percent in Managua, 86 percent in Haiti, 70 percent in Belize City, and 25 percent in Quito (FAO, 2014). Traditional gender roles dictate that women must prepare food for their households. This might be the reason for the large rate of participation among women in UPA, to ensure their household has enough food.

Boserup (1970) writes that when women move from rural areas to urban areas, they are expected to work to keep up with the high costs associated with living in the city and since most of their money is spent on food, there is incentive to grow their own.

Additionally, there is also the appeal of being able to sell extra produce. In an UPA project in Jamaica, project managers were more easily able to recruit women to raise chicken than vegetables, because they would make more money selling poultry (Valstar, 1999). The women in that project were drawn to the idea of generating extra money from the project and not necessarily increasing food security within their homes. In contrast, in Haiti, women were drawn to an urban agriculture project to increase food availability in their homes to improve nutrition (Vansteenkiste, 2014). A woman was quoted saying, “Our great-grandparents lived long lives. Now kids are sick; twelve and thirteen years olds are getting sick. It is the imported processed food that is making us sick and because we are no longer eating fresh food” (Vansteenkiste, 2014). In this project, the main goal was to help women no longer face injustices in their lives and encourage women to participate in more socio-economic activities (Vansteenkiste, 2014). However, Haitian women had a hard time understanding the overall goal of them becoming more autonomous and community leaders (encouraging them teach other women to start their own gardens). They did not see how the gardens could be a means to gain more agency and shatter gender norms. Women from the project paid men to build the raised beds required for the gardens because it was considered men’s work (Vansteenkiste, 2014). The lack of organization and clarification of objectives to meet their goals hindered the projects opportunity to reach its full potential in terms of equity.

## Gender and Disaster

When natural disasters occur, not everyone is equally affected (Enarson E., 1998; Austin, K. & McKinney L., 2016; Enarson, E., Fothergill, A., & Peek, L., 2017; Fothergill,

A., & Peek L., 2004; Jordan, E., Javernick-Will, A., & Tierney, K., 2016). Some people lose everything due to the ways in which their homes were constructed and some people have enough money to flee their homes to safety. The Caribbean specifically, is becoming more vulnerable to natural disasters with increased occurrence, frequency, and strength of hurricanes (Deare, 2004). When looking at the effects of natural disasters through a gendered lens, women are more impacted by natural disasters. A country's development and vulnerability are influenced by the socio-economic position and conditions before a natural disaster and women and children are the ones hardest affected due to their prior vulnerability (Deare, 2004).

Vulnerability is a concept that considers the differences among people and uncovers the circumstances that can change from an event, like a natural disaster, and highlight the lack of resources that are magnified in a natural disaster (Bradshaw, 2014). Juran (2019) writes, "Thus, while the post-disaster arena varies greatly from 'normal time' the overarching parallel is that disparities that existed before the disaster are perpetuated and exacerbated both during and after the disaster". Farms and farmers experience significant losses after disasters due to the extreme change in weather patterns. For people that depends on their farms for their livelihood, natural disasters have the potential to destroy their economic security in the present and in the future. In Nicaragua, after Hurricane Mitch, people surveyed were more concerned about their production losses in comparison to losses in subsistence capacity (Bradshaw, 2014). In addition, Bradshaw (2014), found that 32 percent of female-headed households did not plant the year after the hurricane, in comparison to 23 percent of male-headed households. No information is available for backyard agricultural production, however the value of loss in egg production was

estimated between \$90,000-\$120,000 per month (Bradshaw, 2014). Women are more likely to be employed in the informal sector, like selling eggs from home, which means that after a disaster they are more affected due to the disruptions in communications and transportation (The World Bank, 2001).

Women play important roles in post-disaster cleanup and searching for food, however their efforts are not valued and forgotten by men (Bradshaw, 2014). The minimization of women's contribution to post disaster cleanup is significant because women have larger social networks that can be more helpful than men. When there is no crisis occurring, women's social networks are not valued. The World Bank (2001) found that in Honduras after Hurricane Mitch, the social networks of women were important for people to rebuild and access resource (2001). Another way women and men are disadvantaged after a disaster is they may have to pay for hired labor on their farms for any damaged sustained, however women are more adversely affected, due to lower income and repairs taking up a larger percent of their earnings (Deare, 2004). The process of obtaining funding and aid is long and daunting, thus women may not want to engage in the process (Juran, 2012). If a woman has a business and also needs to go through the process for her own personal home, she may opt to not do it for her business. This affects her future and potential to have economic security. There is usually very little assessment about the loss of women run businesses (Juran, 2012). It is unclear if these are formal or informal businesses, however it is clear that more attention should be paid to women operated businesses regardless if they are formal or informal. Approaches to better prepare for disasters must integrate the livelihoods of women into their plans and be more proactive.

Urban agriculture can be utilized by individuals or communities for an array of reasons including income generating activities and better access to locally produced foods. This is especially important for vulnerable communities and countries that import a lot of their food, like Puerto Rico. Women are an important and vital part of urban agriculture, however little is known about their experiences. Therefore, women involved in urban agriculture must be further researched to understand their perspectives and expertise on urban agriculture. Furthermore, they can provide insight on important oriented food system, like Puerto Rico's dependency on food imports from the United States.

## Theoretical Frameworks

### Dependency Theory

The economic projection of countries like, Puerto Rico, who have increased industrialization but still rely on an outside country for necessities and other goods has

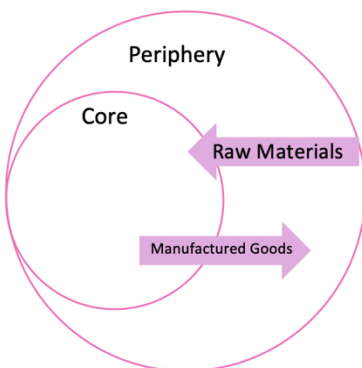


Figure 1 :Dependency Theory Framework

been studied in depth by development scholars, specifically, Dependency Theory scholars( Henrique Cardoso, F., & Faletto, E., 1971; Prebisch, R., 1959; & Gunder-Frank, A., 1966). Dependency Theory states that while metropolises are developed, the satellites are underdeveloped. (Gunder-Frank, 1966). This is a result of periphery(satellite) countries providing lower cost

raw materials or service to the core (metropolises), who produce higher cost industrial

products (Figure 1<sup>1</sup>.) In addition, Raul Prebisch adds that the benefits of increased productivity have not had the same positive effect on countries in the periphery (satellite) in comparison to countries that are the metropolises (1959).

Despite the same conclusion of the unequal distribution of power between metropolises and satellites, Prebisch and Gunder- Frank disagree on how a country can achieve economic success. Gunder- Frank argues that countries in Latin America have experienced their greatest economic growth when ties to foreign countries are the weakest (1966). Prebisch believes that Latin America should use their abundance of natural and raw materials to increase economic development throughout countries. He writes, “The more active Latin America’s foreign trade, the greater the possibility of increasing productivity by means of intensive capital formation” (1959). This is juxtaposition with Gunder-Frank’s overall belief that capitalism was not working in favor of Latin America’s development. Despite these differences, both scholars believed that in order to find solutions for the underdevelopment in Latin America, people must frame the problems and issues in the context of the country being worked in. Prebisch wrote, “The case of the Latin-American countries must therefore be presented clearly, so that interests, aspirations, and opportunities, bearing in mind of course, the individual differences and characteristics...” (1959). Gunder-Frank echoed similar thoughts writing, “ ... neither the past nor the present of the underdeveloped countries resembles in any important respect the past of the now developed countries. The now developed countries were never underdeveloped, though they might have been undeveloped” (1966). However, both authors agree that

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<sup>1</sup> Figure 1 is adapted from Gunder-Frank and Prebich’s work.

exploitative nature of trade between countries can be detrimental to the less developed one.

In this case, the United States would be the metropole and Puerto Rico would be the satellite. Historically, Puerto Rico provided the United States with cheap agricultural commodities, like sugar and tobacco. Then the island became a source of cheap labor for factories, and currently manufacturing pharmaceuticals and the service industry make up most of their economic sectors. It is widely believed that in order for a country to achieve the status of a “developed” nation, an “underdeveloped” nation must allow the infiltration of foreign capital, values, and institutions from the metropolises (Gunder-Frank, 1966). In Puerto Rico, the historical influx of foreign capital and values has had many unintended consequences such as lower median household incomes and greater poverty and food insecurity among women, as noted in the Introduction. The current path of economic development is extractive, exploitative, and enforces an unequal power dynamic as seen between the United States and Puerto Rico. “Economic reforms based on the idea of limitless growth in a limited world can only be maintained if the powerful grab the resources of the vulnerable” (Mies & Shiva, 2014). This imbalance of power manifests itself in the inability of Puerto Rican women to find and afford locally produced fresh fruits and vegetables because the majority of the food is imported due to the mechanized-oriented economy the United States structured.



## Feminist Theoretical Framework

Feminist standpoint theory is a framework used that centers the lived experiences, subjectivity, and knowledge of a specific person and argues that the person is the most knowledgeable on that subject or lived experience (Bowell, n.d.). For instance, women have acquired different knowledge on certain subjects, like farming, due to their status as women and their perception and knowledge of it will differ from men's due to their gendered position. In addition, feminist standpoint theory argues that research should be focused on hegemonic relationships and should center the lives of marginalized people (Bowell, n.d.). Feminist scholars like Nancy Hartstock, Sandra Harding, Donna Haraway, and Patricia Hills Collins advocate in their scholarship the importance of centering the lived experiences of women and placing that knowledge at the center of research inquiry (e.g., Haraway 1988, Harding, 1993; Hills Collins, 1997). What these scholars argue is that positions that women occupy in society inform the ways in which they see the world, interact with people in power, and how they approach issues and problem solving. Sandra Harding wrote, "Starting off research from women's lives will generate less partial and distorted accounts not only of women's lives but also of men's lives and of the whole social order" (1993).

Women in different industries will also have different experiences, challenges, and solutions than those of men, particularly women of color. Much of the research that is done centers around urban agriculture and sometimes the community, completely disregarding gender structures. Putting the focus on women's work allows researchers to have a more holistic and accurate understanding of the advantages, challenges, and benefits of urban agriculture. Harding adds that standpoint theory demonstrates how a social disadvantage

can be turned into a scientific advantage, among other things (2004). This framework is most appropriate for this research because the women in Puerto Rico that are urban farmers are much more knowledgeable than I on what their experiences have been, why these projects started, and much more. It is their narratives that will drive my understanding. These women are strong, wise, and capable women however, the lack of government and at times, volunteer support leads to women working more than they might have anticipated and this work seeks to highlight them and give them agency by centering their voices.

## Positionality

In qualitative research it is important to address bias and is my responsibility in order to establish transparency, trustworthiness, and accountability with the readers and the women I interviewed. For the purpose of this study it is important to note that I am a 24-year-old Chicana from a low-income background. I am currently pursuing a graduate degree in International Agricultural Development and previously pursued undergraduate degrees in Agricultural Business and Latin American Studies. This research stems from a commitment to gender equity, finding alternative and nonconventional ways to increase food security, accessibility, and sovereignty. In addition, this research focuses on Latinas because Latinas are important fixtures at all parts of the food system, and largely not focused on. Since I also identify as a Latina and can speak Spanish, it created a sense of ease and comfort between myself and the women I interviewed. It is possible that the women might have been more comfortable around me since I am Mexican-American. There were a few times when women referred to me as only Mexican. However, it is important to note

that while Puerto Rican culture and Mexican culture have some similarities, there are a lot of differences starting with distinct geographic and regional differences. In addition both of our cultures must deal with the pressures to assimilate into the dominate culture of the United States. However Puerto Rican's have a much different relationship to this due to their role as a separate nation-state with perhaps similar but distinct values and culture.

In order to integrate myself better, I used typical Puerto Rican words for many items including urban gardens (*Huertos Urbanos*) and familiarized myself with staple food items and made sure to ask questions about their significance. It is important to also add that while in Puerto Rico I had a guide, Eva Bayona. Eva recently graduated with her Master's in Environmental Planning and had worked on Calitxta Ortiz and colleagues' (2018) guide for *huertos* in San Juan. Her familiarity with the topic and subject helped me to set up interviews because she had previously worked with them and she edited my questions to make them more understandable in Puerto Rican Spanish.

Finally, as much as I could try to remove power imbalances between myself and the women I interviewed, the inadequate and catastrophic response by the United States government in the wake of Hurricane Maria, may have influenced my decision to go to Puerto Rico and research the significance of these spaces.

## Research Objectives

The overall objective of this research was to understand the role that *huertos urbanos* play in the lives of women and the communities. Specifically, the following research questions were aimed at addressing these broad questions:

- What are the women's lived experiences being involved in *huertos*?

- What are some of the challenges and benefits experienced by women involved in *huertos*?
- What is the significance of these *huertos* to the women involved?
- What are women perspectives and experiences with the Puerto Rico food system?
- What is lost or could be lost in the event of natural disaster, in relation to the *huerto*?

## Methods

The research in this paper took place in urban farms throughout San Juan, Puerto Rico. I was in Puerto Rico from July 11<sup>th</sup>, 2019 to August 9<sup>th</sup>, 2019. I conducted semi-structured in-depth interviews with nine women, interviews lasted between 45 minutes and one hour and 45 minutes. Purposive snowball sampling was used to identify women, who were all distinctly involved in different areas of urban agriculture in San Juan. The women listed below are the women I interviewed. Interviewees were asked 13 open-ended questions. The methodology and tools used for this research are influenced by Participatory Action Research (PAR). Chambers (1994) describes participatory action research as, “an approach and method for learning about rural life and conditions from, with and by rural people” ( pg. 1). This approach can be used to learn about all types of people regardless of where they live. Most of the women interviewed are Key Informants, experts of urban agriculture. The interview questions were all categorized under distinctive themes I wanted to address in my research. The themes were:

- ❖ Urban Agriculture

- ❖ Disaster response
- ❖ Food resiliency
- ❖ Food sovereignty and changes in the food system
- ❖ Community support

Within these themes and their distinct questions, I had subthemes that I hoped each woman would address. For example, in the response to the urban agriculture questions I hoped that subthemes addressed would be:

- Influence
- Knowledge before farming
- Deciding what to plant
- Support from social network
- Selling surplus
- Benefits from urban farm

Having this list of subthemes, I hoped would be addressed in the interview allowed for topics to be broached naturally as opposed to asking direct questions on the topics. Originally questions were written in English and then translated into Spanish. Upon arrival in Puerto Rico my guide, Eva, also made some language changes that would be understood better in Puerto Rican Spanish.

Another PAR tool that was used in my interviews were transect walks. Transect walks are described by Chambers (1994) as , “ walking with local people through an area, observing, asking, listening, discussing, identifying different zones, soils, land uses, vegetation, crops, livestock, local and introduced technologies, etc.”. In San Juan, transect walks were used to obtain a deeper knowledge of the *huerto* itself, the important foods that

were planted, land use, problems areas, unique characteristics to each *huerto*, and much more. These transect walks in partnership with the interviews created a more holistic interview process. During the transect walks, information discussed during the interview would be reinforced. Specific spaces in their *huertos* would remind the women of other topics that would have otherwise not come up during the interview. If the interview was conducted at the *huerto*, a transect walk took place before or after the sit-down interview. Most interviews were just me and the person I interviewed; however, in some cases, there were volunteers at the *huerto* or neighbors that would stop by and chat. While the content of what these external people said is not included in the scope of this paper, it allowed for me to see the dynamic and social nature of these *huertos*. All of the interviews conducted were in Spanish. Due to the short nature of my stay in Puerto Rico and peoples' schedules some of the interviews were conducted over the computer later

### Urban Farmers Interviewed

Puerto Rico is a diverse island full of multiracial people. Much of its population has a combination of Black, Taino, and European ancestry. This diverse ancestry results in significant phenotypic variation (Landale & Oropresa, 2002). Having a complex background as such makes it difficult for people to choose a race that they identify with. In 2014, 58 percent of Puerto Ricans identified as White to the United States Census (Vargas Ramos, 2016). That same year the second most popular option was the category Some Other Race, 26 percent of Puerto Ricans choose this category, choosing to write in Puerto Rican or Boricua (Vargas Ramos, 2016). Puerto Ricans who identified as black in 2014 were approximately 7 percent (Vargas Ramos, 2016). Furthermore, due to systems and societal

inequities throughout the world it can be expected that people who identify as black or folks that have darker skin are more likely to face more hardships than white Puerto Ricans. Vargas Ramos writes “ ... the expectation for the present analysis is that non-white Puerto Ricans will not perform as well as white Puerto Ricans along a number of socioeconomic indications both in Puerto Rico and the United States”. In this study I didn’t ask the women how they identify. Looking back at it, I wish I would have. However, as an outsider of this community it is not up to me to decide which of these ladies is a Black Puerto Rican or a White Puerto Rican. As a result in the description below race will not be mentioned. I interviewed the following women, names have been changed to protect confidentiality and in accordance with best research practices.

Victoria was the first person I interviewed. She brought a different perspective about urban agriculture due to her experience working as a project manager but also as an individual who was very environmentally conscious. We had a sit-down interview at a local lunch restaurant. She has an agricultural background that has allowed for her to apply these skills in various settings in Puerto Rico in addition to the huertos. She is not a native to Puerto Rico which added an extra layer of intricacy to her experiences.

Yolanda was a regular volunteer at a *huerto* in addition to having another job. She was one of the younger women I interviewed. I interviewed Yolanda at the huerto she worked at, this made it possible for us to have a sit-down interview in addition to a transect walk.

Linda was the manager and founder of a big huerto, in addition to being a community leader and psychologist. Her interview was held at an office in the apartment complex, before the interview we conducted a transect-walk. Her unique experiences from

a managerial point of view brought a unique and important perspective to the study. She is one of two older women that were interviewed.

Maya<sup>2</sup> became the manager of a *huerto* shortly after Hurricane Maria and worked there until shortly before I arrived. Maya's interview was conducted in-person at a local coffee shop. In addition to her experience of working on the *huerto* during a critical time she also works in agroecology and is generally very passionate about agriculture.

Erica just finished her Masters in environmental studies. She has experience volunteering at various *huertos urbanos* and farms in Puerto. She is very familiar with agriculture because she grew up on a farm in Latin America. She is the second of two non-Puerto Ricans interviewed. Her interview took place at a local restaurant.

Antonia is the founder of the urban farm she manages. She grew up in a rural area of Puerto Rico on a farm. Antonia is the second of the two older women interviewed. Antonia's interview took place at her house on the front porch, afterwards we did a transect walk at the *huerto*.

Marisa has a lot of experience in agriculture, having not only grown up outside of the city but also researching urban agriculture and working on various tools for urban farmers in Puerto Rico. In addition to this she is also a professor at a university in Puerto Rico. Marisa's interview took place in her office at a local university.

Carina is currently a graduate student at a university in Puerto Rico. Carina was interviewed over zoom. Her research is on educational urban agriculture. She has experience not only as a project manager and implementer of urban agriculture but also as a volunteer.

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<sup>2</sup> Noemi and Maya worked at the same *huerto*.



Noemi<sup>3</sup> is a doctoral Ph.D student in Puerto Rico who is currently the manager of a *huerto urbano*. Noemi is the only person I interviewed twice, we did a transect walk at the huerto when I was in Puerto Rico and a zoom call once I returned to California. She is one of the younger people interviewed. Although her research focuses on rivers and streams, she doesn't have a robust agricultural background like other people interviewed.

In addition to the interviews and transect walks, I would journal every night during my time in Puerto Rico. This allowed me to reflect on the interviews I conducted and note themes during my time in Puerto Rico, outside of the interviews. I also visited 3 different farmers markets in Puerto Rico (Mercado Agricola de Viejo San Juan, La Plaza del Mercado de Santurce, and Mercado Organica). My goal in doing this was to get a greater understanding of the local agricultural food system. These farmers markets were also mentioned many times during my interviews with various women. After visiting these markets, I would journal about the experience and what products were sold. It was also useful to compare this experience to the supermarket I would purchase my own food from.

After the interviews were conducted, they were then transcribed using ExpressScribe. Interviews were then analyzed using Nvivo and used a deductive coding method rooted in feminist frameworks of standpoint theory and dependency theory. I developed a set of themes that was reference to guide the coding process (Yi, 2018). Despite the interviews being conducted in Spanish and transcribed in Spanish, the codes used in NVivo were in English. Standpoint theory was used as guide because the research in this paper includes the inherent knowledge and lived experiences of these women to inform findings and recommendations. Furthermore, Dependency theory allows for the

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<sup>3</sup> Noemi and Maya worked at the same *huerto*.

topics that were discussed with these women to be fit into a broader framework of Puerto Rico, in general and how colonial relationships with the United States influence their *huertos*.

## Findings

The findings in this section are organized using the five distinctive themes that my research questions were centered around and then by subtheme. The majority of the subthemes were also identified as topics I wanted participants to address in their answers. Some of them were included after I noticed them come up in more than one interview. Interviews were coded using a deductive coding process. The codes used were the same subthemes they are divided under.

### Urban Agriculture

#### Community Response to Establishment

How a community responds to the establishment varies *huerto to huerto*.

Establishment refers to the initiation of creating a *huerto* in a community but also the *huerto* itself. The question asked was “Como respondio la comunidad al *huerto*?” (how did the community respond to the *huerto*). In Carina’s experience working with elderly people establishing a *huerto* in an apartment complex, some neighbors were physically not able to help establish the *huerto*. However, they helped in other ways, like donating seeds or starter plants. In Linda’s case, a group of women at the apartment she lived at identified community needs and then surveyed people who lived in the apartment complex to see

what they believe was the greatest need for the community. Linda said overwhelmingly that people expressed a need for fresh and organic produce. In Mayra and Noemi experiences it was also the community that identified the need for produce. Marisa added that she believes that many of the people involved in the creation of a *huerto* typically have some sort of experience with agriculture. In contrast, some people might be limited in their abilities to participate because they lack any knowledge on agriculture and feel intimidated.

Antonia was the only women whose *huerto* was a result of preventing gentrification. According to Antonia, the place where the community *huerto* is situated was the parking lot for a shopping center that never got built. One day a foreign lady approached her and noted that the lot was the perfect place to build a house. “*Yo Boricua hasta el fin, para que invada otra, invado yo que soy de aqui* ( I am Boricua until the day I die, instead of letting another person invade, I am from here and I will invade)”. She slowly began planting flower seeds early in the morning and then bananas. Eventually her actions caught the attention of the president of the neighborhood association and he asked her if she would like to establish a *huerto*. To this day they are the only consistent volunteers of that *huerto*. The creation of *huertos* in communities in Puerto Rico ranged from participatory to radical, as in the case of Antonia.

### Perceptions of urban agriculture

Women interviewed had a generally positive perceptions of urban agriculture and what a *huerto* could contribute to a community. Carina brought up that urban agriculture was a way for everyday people to create changes in the Puerto Rico food system. *Huertos* are a physical space that community members can use to interact with one another. There

is an inherent exchange of knowledge with one another and, at times, an intergenerational exchange of knowledge between older people and younger people. In addition, Erica added that volunteering at various *huertos* made her interact with different people who exposed her to a lot of unique ideas about agriculture. She added that the conversations with volunteers at Linda's *huerto* are much different than those with college students at the local *huerto*. Antonia added that most people in her community appreciate the value and beauty that the *huerto* brings her community. However this doesn't result in more volunteers. People in her community felt as if it gave their community a better reputation. Maya added that she noted a lack of interest when community members were given the option to have their own plot and grow their own food. She added that is understandable, especially for folks who work all day, and the last thing they may want to do is more work. In contrast, Marisa noted that in her experience people began to notice the potential of urban agriculture, in moments of crisis or in a moment of food insecurity. Many women also noted that the *huertos* are often times used by themselves as a teaching tool to teach about the environment, agriculture, or nutrition. Several women added that urban areas also need sustainable and nutritional development projects, especially after hurricanes when urban communities are left vulnerable. Creating sustainable development projects would increase the overall positive perception of urban agriculture that women and others have.

### Future of urban agriculture

Many women shared that there is a lack of institutional support from the Puerto Rican government, which threatens the future of the *huertos*. At least two women interviewed expressed that they got funding from the Toyota Foundation while another source of funding identified was the *Banco Popular* grant opportunities. Some women

mentioned receiving help from universities through extension and volunteer support. However, this was not widespread and extension services were only received during the first years of the *huerto*.

They were mixed in their recommendations and ideas of how the future would look for urban agriculture. Marisa expressed that there needs to be regulations passed so that urban agriculture is regulated and orderly. She added that there needs to be regulations that regulate the environment for the community and what can and cannot be grown. Antonia expressed that the future of urban agriculture is threatened by the lack of volunteers. Furthermore Carina said, “ *No deberían estar sobreviviendo, deberían ser que tienen el apoyo, y se continúan renovando, creciendo, y teniendo más impacto...* (They shouldn’t just be surviving, they should be receiving support, continually growing and renovating, and having more impact)”. There was some hope expressed since many women witness a growing interest from younger people to be involved in agriculture. Marisa added that there is success with the individual *huertos* that people have at their homes and that might be a possible success route for urban agriculture in Puerto Rico that can be explored.

### Selling of products

One of the primary benefits that *huertos* bring to their communities is the increased availability of fresh produce. All women interviewed only grow what they know people are going to buy or what they know is most commonly consumed. All *huertos* sold things cheaper than the grocery store. Linda added that if she knew someone didn’t have money, she would give them free produce. Many women noted that they sold produce much cheaper than the grocery store and with better quality. Around 50% had sold or were currently selling produce to commercial buyers like restaurants or hotels.

Success in growing at a competitive price is challenging, however. Erica added that it is normally very hard for *huertos* to be a consistent provider of produce due to the irregularity of volunteers and perhaps not being able to fulfill a contract. Another constraint for *huertos* is identifying how much people they can actually serve and who they want to serve. Erica noted that when *huertos* start selling produce to people outside of the community, the goal of providing for the community is no longer there. This can be a hard position to navigate because those involved in *huertos* feel proud of being able to sell their products to people outside of their direct community. At the time when the women were interviewed, some noted that the *huertos* were producing enough for volunteers and local community members but not enough to sell to other people. Valeria added that in general a lot of work needs to be done to create and strengthen the local markets for vendors.

Some women mentioned that it was hard to find or get to a location where locally grown produce was sold. This makes buying from nearby communities much easier. Another hurdle a few women mentioned is dealing with community members who want produce for free. Erica added that most people don't know how much time and effort goes into growing a product. Other sources of income for the *huertos* include offering urban agriculture workshops and selling plants for conservation projects.

### Quality of products

In order for people to support local farmers they must experience the difference in taste and quality, as expressed by Marisa. Most women had this perception that the lack of chemicals being used on the *huertos* resulted in better tasting produce. Erica and Linda added that eating leafy greens bought at the grocery store tasted like chemicals in comparison to the more desirable taste from the leafy greens they could acquire in their

*huertos*. Antonia added that not only was she eating better quality produce but she was also saving money. Due to the perception of higher quality and better tasting produce at least two *huertos* sold their produce to high-end restaurants. Noemi also added that *huertos* also grow items that are not typically consumed or produced on the island due to cultural diets. Mayra noted that *huertos* normally expose children to different fruits and vegetables and can potentially change consumption patterns of the youth, influencing them to eat healthier and fresher produce. Thus, there were many benefits to having quality that was perceived as better than grocery produce.

### Volunteers

Every woman interviewed mentioned a lack of volunteers at *huertos*. Each woman has attempted more than one method to reach out to people including word of mouth, events, flyers, and Facebook events. Antonia added that if people volunteered, there would be no need to sell them products, they could all share. The longevity and strength of the *huerto* is dependent on community support, according to Eva. There were at least two *huertos* who had a significant amount of college students as volunteers. One *huerto* worked directly with a local university and the other did not.

Another source of volunteers was through volunteer brigades. These brigades come from all over the island to help various entities, including *huertos*. Linda noted that brigades were vital to helping her clean up her *huerto* after Hurricane Maria. Mayra added that people generally underestimate the value of volunteers because their labor is free. She added that the small group of volunteers ultimately gets tired and cannot volunteer anymore. Only one woman explicitly mentioned that she wished that there were more adults (non-college students) who volunteered.

### What the women enjoy

Identifying what women enjoy was very important to include in this research. It was important to include a narrative of what they are fond of to highlight why they chose to face some of the difficulties that arise with being involved with a *huerto*. In addition, it was also important to find out if women actually enjoyed growing their own produce or if it was done more out of necessity. Overall, most women expressed that they felt very positively about the *huertos*.

The things that women enjoy about the *huertos* varied woman by woman. However, there are some common themes that came up. Women stated that community members enjoy the products grown at the *huertos*. Yolanda believes that people enjoy being able to have access to fruit trees in a city, an area where there normally are none. To that point, Marissa mentioned that having the final product and being able to sell it is also a highly enjoyed activity. She added that getting the final product makes people feel accomplished because there are many stages that need to be completed before getting the final product. Three of the women interviewed said that their favorite part was planting seeds and witnessing their growth. Antonia expressed that one of the things she enjoyed was being able to implement what she learned from her father when she was growing up in the countryside. She also added that she liked sitting down in the evenings and dehulling pigeon peas. Carina said her favorite thing was being able to create connections between people that can collaborate on future projects. Some other non-agronomic things people enjoy include being able to spend time with like-minded people, having access to produce without having to go to the grocery store, community events held at the *huertos*, and a space for kids to play and receive homework help.



Another non-agronomic benefit of *huertos* are the therapeutic effects of interacting with nature. One woman interviewed stated that being involved in *huertos* makes her feel as if she is contributing to a solution to the issue of lack of fresh produce in Puerto Rico. Erica stated that working in the *huerto* helps her destress. She also added that being able to experience the growth of plant is great for the soul. Being involved in *huertos* is also a way for women who grew up in the countryside farming to get back in touch with those roots.

### Youth involvement

Despite many women expressing that young people are the future of agriculture in Puerto Rico, some women also felt as if young people don't want to do the hard labor that is required for agricultural work and that perhaps results in the low number of volunteers. A different experience was expressed by Carina, who primarily works with children. She added that teachers do not recognize the influence that they have and that the children have. She said that if a child has been learning about agriculture at school, they might mention it at home and influence their parents to start a *huerto*. However, this potential has not been recognized. Likewise, Erica and Carina both mentioned that there is a lack of agricultural education for children. They believe that children are interested however there isn't much institutional support. Exposure to agriculture therefore comes from experiences outside of school, like at community gardens.

However, this exposure outside of school is limited. For example, at Lydia's *huerto* they do a brief summer camp and at Noemi's *huerto* there is a regular program that runs

the entire school year and takes a break during the summer. However, both of these programs are limited to the children that live in those communities.

Maya added that children were essential for the establishment of the *huerto* she worked at it. It was neighborhood children who had the idea to establish a compost business, which when they were connected with a local professor interested in urban agriculture turned into a community urban farms. These community *huertos* are also valuable because they can develop community leaders who continue to be involved with the *huerto* for a long time.

When living in urban areas, *huertos* become an oasis for children. They are exposed to more greenery and are exposed to where their food comes from. At the *huerto* Noemi manages, they used to provide youth involved with a stipend for their labor. However, in recent years they haven't had the funding to afford the stipend. Some of the work that children at *huertos* do is water plants, preparing the soil, and weeding. Noemi adds that it is important to remember that the children will get tired. Victoria expressed that it is easier to work with children than adults because children are more flexible than adults. Indeed, children are very important for the success of a *huerto*. Noemi noted, "*Los niños son el corazon del huerto, son las personas siempre presente, son los niños. Los niños son los que estan siempre de apoyo..* (The kids are the heart of this *huerto*, they are the people consistently present. The kids are always the ones to support us)".

## Puerto Rican Food System and Food Sovereignty

### Food system in Puerto Rico

When interviewed about the overall food system in Puerto Rico and how *huertos* fit into that system, women talked about food imports in Puerto Rico and how there is a lack of locally grown food products in general. Some of the older women expressed that over their lifetime there has been less access to locally grown products. While some of the younger women believed that there were more locally grown products. Maya expressed that food imports began in the 1940s when Puerto Rico began to focus on other industries; further supporting the older women sentiments that availability of local foods has changed in their lifetime. Maya adds that the drastic changes in the food system have occurred in the lifetime of one person, because a person born in the 40s would be 80 years old in 2020.

Another obstacle identified is that it is not easy for people to buy locally grown products. There are a few farmers markets with local farmers, however they might not be easy to get to or some of the farmers markets are only weekends and some are only a few times a month. Many women said that it is very rare for a locally grown produce to be sold at local grocery stores. Erica added that one reason is that local farmers do not grow enough products for grocery stores to sell. This also includes *huertos*, they are too small to produce a substantive quantity for grocery stores to sell, as mentioned above. At least two women interviewed mentioned that Hurricane Maria was a wake-up call to the entire island; that they are too dependent on food imports. It was stated many times that Puerto Rico has great climate and other agronomic conditions that make it a great location to grow many products. However, it was also expressed that local people infrequently take

advantage of these attributes and it is often foreigners who take on these projects. Many women were hopeful about the role that young people are playing in the current agricultural sector and believed that these folks have the mindset to grow more food in an environmentally-conscious way while also being more conscious consumers, and they believe *huertos* fit into these new ideals.

### Women in Urban Agriculture in Puerto Rico

Most of the women interviewed said that the majority of their volunteers were women. When asked why women make up the majority of volunteers there were a lot of similar answers. For example, women have this natural ability to give life and more nurturing and they take that skill to the garden. Similarly, many said that it is the maternal instinct that women have that leads them to the garden. In addition, many stated that they believe that the dominant presence of women is because women are the ones that cook and prepare food for their families. Having a *huerto* or being involved in one gives them the opportunity to have fresher and healthier products for their families. For example, Linda stated that the *huerto* in her community came about through an initiative from a women's group that identified needs in their community. Furthermore, another reason identified was *huertos* are a way for women that are from the countryside to reconnect with their roots. It is important to note that when asked why they thought most of the volunteers were women most of the women had to take a moment to reflect and come up with an answer. Many women started off by saying they didn't know.

## Food Resiliency

### Collaboration

The main collaborators with *huertos* in general, were local universities. The *huerto* that Maya and Noemi worked at had a strong partnership with the local university. And, as Maya pointed out, that the longevity of the *huerto* is due to the support they receive from the local university. Marisa added that there needs to be more direct government support and collaboration with their offices. Victoria highlighted the importance of collaboration between groups with mutual interests. Collaborating with other groups facilitates projects because there is more funding available. In addition, both groups can mutually learn new techniques and methods from one another.

### Capacity Building

Women interviewed mentioned how participants and themselves have learned a lot about agriculture and agronomic practices from each other. Erica added that she would learn things at the *huertos* she volunteered at and then implement them in her own. *Huerto* managers can build capacity in community members by hosting educational workshops. Carina added that many times people that live in cities don't normally learn or have exposure to agriculture or agricultural education. Erica further added that people at *huertos* would express being frustrated and that they never had learned how to plant seeds and harvest items saying, "*Pero porque a nosotros no nos enseñan a sembrar si es lo basico que uno debe saber* (this is the basic thing we need to learn to survive)". Furthermore, Yvette added that *huertos* need to be the capacity builder for individuals. Valentina believes

that without capacity building the future of *huertos* is threatened. She added that individuals who don't have the skills cannot provide a clear path forward for the *huertos*.

## Sustainability

When women interviewed mentioned the word sustainability, they used it mostly in reference to environmentally sustainability. All *huertos* used no chemical inputs and utilized compost and manure. In addition, they all used agroecological farming methods. Erica added that by using products from her own *huerto* she avoided consuming the many inputs that produce from the grocery has, like the gas needed for transportation or the plastic containers leafy greens come in. She also believes that due to the agroecological methods used in the *huertos*, people involved will be more influenced to change their habits towards the environment and be more mindful. Another aspect of sustainability is the social and economic component of it, which ensures that projects have are maintained for longer. Valentina believes that people involved in *huertos* do not have the creativity or knowledge to forwardly carry out the *huerto*. Furthermore, Yvette adds that at her *huerto*, they also grow plants that are used for soil erosion conservation projects.

## Community

### Participant changes over time

More than one woman interviewed talked about the "boom and bust" *huertos* experience in volunteers. When they first open, there are a lot of volunteers, however after a few years the number of volunteers begin to decrease. Most *huertos* had less than 10 regular volunteers.

In response to this question, Carina said that support for the *huerto* doesn't stay at 100% but when it does, it is because those involved are actually very interested. She added

that people that stay and get more involved generally have more experience and more desire to get involved. In contrast Erica, noted that she sensed a general lack of interest from community members. She said, “When they do volunteer they work for a month or two. They begin to get tired and volunteer less. It’s hard work, it’s not easy.” She added that most *huertos* only have 1-3 volunteers left.

However, many beneficiaries of *huertos* still say that they support the *huerto* despite not being directly involved. Linda added, “*Si yo fuero apartamento por apartamento todo el mundo te va decir que apoyo el huerto* (If went apartment by apartment and asked if they supported the *huerto*, they would all say yes)”. They buy from us”. Linda also noticed that at the *huerto* she was in charge of, they have had more volunteers in the past. Participant changes are also expected during significant events, like Hurricane Maria. Most *huertos* noted a decrease in volunteers after the hurricane. Most people had other things to worry about after the hurricane and many people also had to move. Volunteership hasn’t recovered after the hurricane, making already scare volunteers scarcer.

### Significance of What is Grown

The bulk of what is grown in *huertos urbanos* in San Juan are products that are typically used in Puerto Rican cuisine. One woman noted that in the future she wishes to implement a more participatory sense of growing, and gather input from people that frequent the *huerto*. A few women also noted that they also grow medicinal plants in their *huertos*. Mayra also added that her goal was to utilize space at the *huerto* she worked at to encourage people to grow produce and start a small business.

## Who the Space Belongs to

One interesting finding is that perhaps who the community perceives the space belongs to may affect community involvement. For example, Antonia mentioned that she had little to no help from the community. She also added that many people call it her *huerto* (Antonia's *huerto*). In addition, the *huerto* is locked to the community and she is the only one with a key. Erica supported this when she mentioned a school *huerto* that ceases to exist due to school closures after Hurricane Maria. She stated that the community around the school never took ownership of the *huerto*. Despite being invited to take part in *huerto* activities, the community members never really participated. This was a major hurdle that Maya identified during her time as manager at a *huerto*. At the *huerto* she managed, the local university "held the keys". Community members had established that she had a perceived ownership since only she held the key and because the university hired her to manage the *huerto*. She added that community members might think, "*es de la universidad y yo tengo derecho en este horario* (this is the university's and I have the right to use it during this timeframe"). In addition, she states that she thinks that community members don't feel like the *huerto* is theirs or even asks for their own designated space to plant products as they wish. In contrast, at the *huerto* Yolanda works at there are many people that have keys. Yolanda adds that people do ask to have their own plot of land. Women also expressed that they would like to be able to hire someone from the community to be in charge of the *huerto*, but so far no one has the funding for it.

## Significance of Shared Space

*Huertos* are much more than just a place where people can acquire fresh produce. For example, in Antonia's neighborhood, the *huerto* became a place that helped improve



the reputation of the neighborhood. Similarly, the *huerto* that Maya and Noemi worked at also replaced an abandoned lot. The *huerto* not only becomes a beautiful green area but also a productive area. In addition, people want to make sure it is presentable and well-maintained. During my interview with Noemi, community members came over and asked her when the *huerto* was going to be open again (they took a month break) because the weeds needed to be pulled. Noemi also added that the *huerto* is an important social gathering spot where children celebrate their birthdays and community members celebrate holidays. In addition, the *huerto* became an important gathering place after Hurricane Maria. Community members would meet there to gather necessary goods like water or charge their phones, but it also became a place where people could exchange knowledge. The *huerto* that Yvette works at was situated in between high-income apartments and low-income apartments and Yvette expressed that the *huerto* has become a neutral area, where everyone can enjoy the shared space.

## Support of Government and Hurricane Maria

### Response to Hurricane Maria

After Hurricane Maria, many *huertos* faced the tough task of rebuilding and rehabilitating their *huertos*. According to Marisa, before the hurricane there were 15 *huertos* that she knew of in San Juan; after the hurricane only 7 remained. This is because of the many challenges *huertos* faced to reconstruct. If *huertos* were heavily impacted and did not have a strong support network it is a lot of labor for a few folks to do, especially if they also need to worry about the impact the hurricane had on their own personal lives. A few women mentioned that almost two and a half years after Hurricane Maria their *huertos* were still not fully recovered. Many women identified their own communities as a source of

help to help clean up the *huertos*. Erica added that most communities welcomed help from outsiders, like university groups, which were identified by many women as a main source of help as well. However, Erica also added that the ability of a *huerto* to recover was dependent on the community, in some communities the *huertos* weren't a priority. Furthermore, Marisa expressed that *huertos* with strong leaders have been able to bounce back.

Strong leadership is one of the reasons the *huertos* of the women interviewed in this research were able to recover; because they were important to the women who managed them or volunteered at them. For example, Antonia had little to no help in cleaning up her *huerto* after the hurricane and she added that it was mostly her and the former community president that recovered the *huerto*. However, she also noted that her *huerto* wasn't very impacted.

Erica illuminated how the lack of community help could negatively impact the recovery of *huertos*. When she went to go check on *huertos* after the hurricane, Erica saw a community in which there was a *huerto* that had been flourishing was destroyed and had been used as a place for people to dump their trash. The original managers of the *huerto* had to move due to the hurricane and no one in the community had tried to preserve the *huerto*. Even if communities had a flourishing *huerto*, the personal impact of the hurricane to the manager could cause that *huerto* to no longer exist.

Furthermore, many women expressed that Hurricane Maria was a lesson learned to themselves and many people on how vulnerable they were not only to nature but also in regard to food availability on the island. Maya said “ ... *a la realidad que Puerto Rico es una isla, y si no vienen barcas, si no viene nada, va haber hambre* (... Puerto Rico is an island and

if there are no ships coming in, there is nothing and there will be hunger)”. Victoria further added that this sense of vulnerability also led many people to learn about solidarity and autonomy, through helping one another after the hurricane and also realizing that Puerto Rico grows very little of the food actually consumed on the island. She believes that more people are now aware of the lack of local agricultural production.

Due to the disastrous impacts that Hurricane Maria had on their *huertos*, some women are taking precautionary measures in the event of another hurricane. For example, Noemi is working on installing a rain water filtration device that would make rain water potable for the kids that spend time at the *huerto*. She also identified that this would be useful in the event of a hurricane and if there are no water bottles available. In addition, she is also writing a contingency plan in the event of a hurricane and how the *huerto* must prepare, she added that the purpose is for the *huerto* to be more resilient in the future. Yvette added that the *huerto* she volunteered at has completely changed after the hurricane. After the hurricane she said they didn’t think they would be able to bounce back. However, everyone sat down and designed what they wanted in the “new *huerto*”. For example, they have built tables that are tall enough so that plants don’t flood. Linda added that at the *huerto* she manages when they replaced stuff they thought about the ease of being able to move the item somewhere where it would not get damaged. However, these precautions are not being taken by everyone. Antonia said that she is not doing anything different after Hurricane Maria and has not taken any precautions in case of another hurricane. This might be because her *huerto* wasn’t as negatively impacted as others. The reconstruction of each *huerto* is dependent on the damage that was received and volunteers and managers realizing the damage that the *huerto* may acquire if they don’t

act. Furthermore the strategies women used to protect the *huerto* from further showcases their innovation and creativity.

### Support of Government

Most of the women interviewed expressed that they had very little support from the government in terms of funding. A few mentioned that government officials had gone to their *huertos* to have a tour, but that was about the extent of their support. Due to this lack of support before Hurricane Maria, none had received support from the government after the hurricane to rebuild and clean the *huertos*. Women interviewed believe that the Puerto Rican government is much more interested in supporting agricultural projects that are larger in scope and scale. Many women expressed that they had received funding through the private sector, donations, and revenue from their sales. Carina expressed that these entities fill in the void that the government should fulfill. Furthermore, Marisa added that there is potential for local municipal governments to further support huertos if the State government does not.

## Discussion

Here, I present the findings within a greater discussion of dependency theory and standpoint theory. I focus on vulnerability, labor, dependency and resiliency. Leaning on scholars, I have chosen to unpack only a few of the most resonant findings. These were sentiments that meant a lot to the women and correspond to my own experience as a Latina living in Puerto Rico and visiting grocery stores and learning from the women's experiences.

First, the women interviewed said that the majority of their participants were children, young adults, or seniors. They also spoke that the *huerto* is a spot where there is an intergenerational knowledge exchange, where older people can let younger people know about agricultural practices used in the countryside years ago. In development projects, children and the elderly are often some of the most ignored groups. This leads to vulnerability among the elderly, especially in terms of food insecurity. Young children and adults often do not think of agriculture as a feasible career choice due to a lot of stigmas around agricultural labor (Bennell, 2010 in Eissler & Brennan, 2015). However, in Puerto Rico, these findings indicate that movements to grow more food in Puerto Rico are led by younger people and most *huertos* have some sort of educational outreach program to teach children about agriculture. More work needs to be done in Puerto Rico to provide agricultural learning opportunities to students, especially in urban areas.

My findings indicate that a decrease number in volunteers will result in *huerto* managers, all women, having to work longer and more hours at the *huerto*. Looking at this through a feminist lens, these findings show that in an effort to provide their families with fresher and healthier food, women have to take on additional work on top of their other responsibilities. Similarly, Som Castellano (2016) found that women involved in Alternative Food Networks do more physical labor in providing food for their families. In addition, she also found that women with lower incomes exert more physical labor than those of higher incomes in acquiring food (Som Castellano, 2016). Women in Puerto Rico expressed that urban agriculture is a way for them to provide themselves, family, and community members with delicious, healthy, and affordable food in a way that does not harm the environment. In this way these women are contributing to the well-being of those

inside their homes and the overall community, city, and archipelago (Som Castellano, 2016). In Gender Studies, we often talk about the Second Shift that women work, in which women leave their paid labor job and come home to continue to feed their families, clean, and take care of children (Hochschild, 1989). However, we must now also consider the third shift of labor many women in lower-income countries do: the labor that women do to provide their families with food or better-quality food (Som Castellano, 2016). When working in *the huerto*, women are also aware of the benefits to the overall society and environment that their actions generate. We know these experiences to be true because are the lived experiences of these women and they are the most knowledgeable on these experiences. In Puerto Rico, this action of providing and growing their own food for themselves is a mechanism for women to be more autonomous from the US infiltrated food system. This would also perhaps move Puerto Rico from being a “periphery country” in relation to the United States.

In the interviews, many women alluded to and talked about the overall dependency that the Puerto Rican food system has on imported food, mostly from the United States. This corroborates what Gunder-Frank described as the relationship between the core and periphery country. However, in the case of Puerto Rico and the United States, the periphery country (Puerto Rico) is providing manufactured goods in exchange for food and other necessities, from the core country (the United States). This might be a result of the United States historically already using Puerto Rico for its sugar cane and tobacco industry and the economic development approaches in the 1950s that shifted the economy from agriculture to manufacturing.

We can also use this frame of periphery and core countries to examine other issues that come up in the interviews, like the overall change in local diets in Puerto Rico. Many women expressed that in their communities it was easier to obtain food from fast food restaurants or prepared meals from the grocery store. The periphery/core relationship with the US also brought in a colonial diet. Populating Puerto Rico with fast food restaurants based in the United States, increases the revenue for these restaurants. As Puerto Ricans consume fast food more, their health may be impacted in negative ways. This similarly reflects the effect that the conquistadores' diet that eventually led to the death of the Taino's across the Caribbean ( Cook, 2002 in García-Polanco & Rodríguez Cruz, 2019). Thus, the periphery and core framework, described by dependency scholars supports that not only does it have an adverse effect for the periphery economy but also may have an adverse effect on the health of people living in the periphery country. And, in this study, the women interviewed reinforced this theory with their own lived experiences.

We can also use the framework of periphery/core to understand dynamics within the same country. For example, the role of men and women in agriculture is historically very gendered. When people think of a farmer, the image that comes to mind is typically a man. However, many women interviewed in Puerto Rico noted that it was very common for women in the past to have small areas in their backyards dedicated to growing their own herbs, spices, and medicinal plants. Women stated that this practice was slightly less common today due to space issues, but some women did find the space to at least grow medicinal plants. The women interviewed shared that in their experiences that women were very involved in urban agriculture in Puerto Rico, leading me to believe that this might also be the case in rural areas of Puerto Rico. As a society, we tend to think that the

extent of agricultural tasks women contribute in are limited to preparing and cooking are food, thus placing them in the periphery. However, women interviewed expressed that they worked in all aspects of the huerto including preparing the land, harvesting, selling, etc., in addition to a lot of administrative work that is done to coordinate volunteers, acquire tools, recruit people, and many more.

In her work, Ester Boserup (1970), found that the role that women play in agriculture is underestimated and unaccounted for. This remains true in Puerto Rico to this day. The risk of doing this is that policy makers will not be able to pass appropriate policies for urban agriculture and perhaps agriculture in general without being aware of the gendered nature. Thus, the periphery/core framework can be used to determine who would be the most affected by certain policies and what those policies need to address. Furthermore, we can also use this framework when speaking of the relationship between rural and urban agriculture. We often assume that rural farms are the only ones capable of providing food to people, thus underestimating the potential of urban agriculture. Urban and rural agriculture can work in a symbiotic way in which rural areas can provide some necessities such as meat and grains that might not be as easy to grow in an urban area, and urban areas can grow fruits and vegetables. This way, they do not compete with one another but complement one another. The dependency theory framework of core and periphery countries not only works to assess inequalities between countries but also helps assess relationships within countries.

At the time that the interviews took place, most *huertos* were barely recovering from Hurricane Maria. Many were only recently reaching their normal production and schedules. Before the hurricane, many women expressed that they received very little



support from the government and this sentiment remained the same after the hurricane. This sentiment reflects Juran's (2012) finding that after disasters access to aid and rehabilitation resources are not as readily available to women as they are to men.

In addition, when a *huerto* is lost or damaged for a long period of time, that community has lost a source of affordable and fresh fruits and vegetables. This is particularly important in Puerto Rico where 33% of the population is food insecure, and where it can be expected that in low-income areas this percentage is much higher (Santiago-Torres et al., 2019). In addition, communities lose a community gathering area that is important for children and adults to spend time together. These *huertos* can be important areas after disasters for people to exchange information and gather needed materials, similar to what Noemi shared in her interview. Using standpoint theory to inquire about the effect that Hurricane Maria had on these *huertos* made it possible to center the narrative of women and their experiences. Many times, media reports focus on one collective narrative, however people of different gender, ethnicity, and other socioeconomic indicators will be impacted by a disaster differently. "A failure to address gender will reduce the efficacy of a disaster response in addressing the needs of the entire affected population" writes Ayesha Ahmad. She also adds that disasters can be case studies that lead to significant developments towards social change (Ahmad, 2018). In Puerto Rico for example, we know that many people on the island have recognized the need to grow more food on the island and become less dependent on imported foods. Many people are more aware and are making efforts to buy locally grown produce. Furthermore, Ahmad concludes that response to disasters must be catered to that specific community and

account for gender “ as the organizing principle of disaster as a continuous response” (2018).

One of the overarching themes in this research was the overall resiliency of women. Many women continue to work at the *huertos* despite having little to no support from the government and limited support from volunteers. They do more labor, take on a third-shift, to make sure that the *huertos* run efficiently. This resiliency was ever more present after Hurricane Maria, when they worked to clean and rebuild their *huertos*. This resiliency can be interpreted as being able to overcome a challenge, however it is also important to interpret in terms of the given situation. It is clear that these *huertos* are important to these communities because even after a major catastrophic event, like Hurricane Maria, women choose to rebuild and clean up their *huertos*. However, caution must be exercised when describing people as resilient. Tracie L. Jackson, Director of the Louisiana Justice Institute, expressed “Stop calling me resilient. Because every time you say, “Oh they’re resilient that means you can do something else to me. I am not resilient.” (stated about Hurricane Katrina in 2005). Furthermore, resiliency is rooted in overcoming adversity and we should be cognizant in that adversity, what causes that adversity, and how we can work to diminish that adversity in the future. Just because someone is described as resilient doesn’t mean that they shouldn’t have tools and policy in their favor to recover faster from an event such as a hurricane.

## Conclusion

To expand the reach and scope of urban agriculture, there needs to be greater governmental and community support for urban agriculture. In addition, there needs to be

greater collaboration amongst urban farms in San Juan. During my time there, I didn't get the impression that there was much collaboration amongst the *huertos*. They knew of one another and would mention certain *huertos* and they had participated in Calixta-Ortiz's research on *huertos* in San Juan, however there wasn't a cohesive group. One of the ideas that was mentioned to me by Erica and Marisa was the creation of a collective of urban farms, in which each farm specialized in one thing and the others could use that knowledge. For example, one would specialize in compost, preparing seedlings, etc. Furthermore, this could be a great start for creating a strong urban agriculture community in San Juan, where *huertos* would have a larger reach beyond their communities. In addition, by forming a collective they would have greater influence with policy makers. If it's just one urban farmer going to speak to a policy maker it might not have a great impact, however if it's nine or ten from distinct communities it might make a difference.

In order to have proper oversight of urban agriculture there needs to be a collaborative effort in which the departments of agriculture, public health, urban housing, and economic development have input. In addition, this also needs to be in collaboration with communities so that communities have a say on policy that directly affects them. The gendered nature of urban agriculture also needs to be addressed in policy decisions and projects and if this is not addressed it could impede the success of the project. This would include assessing who is going to be involved in the project, what they want to grow, and ways to ensure that they can participate. The benefits that these spaces have for children is important and the needs of children should also be at the center of future policies. Furthermore, more research needs to be done on women and urban agriculture, urban agriculture in lower income countries, and women and disasters. This research project

tried to touch on all of the subjects. Without doing research on these topics, we are underserving a very important community that has the potential to create change not only within their families but also within their communities.

As people around the world come up with solutions to feed the growing and increasingly urban population, we must think outside the box of just increasing yields in rural areas. Urban agriculture is not going to feed everyone, it would be irresponsible to think so. However, it can provide fresh fruits and vegetables to vulnerable communities in urban areas, be a source of income and education, and a community gathering area. Governments must increase support for urban agriculture in order to ensure the longevity of the project, in order to avoid only one person doing most of the labor for the farm. Women in Puerto Rico are resisting the imported oriented food system in Puerto Rico and are making a food system that has healthier, fresher, and local food available to people throughout the archipelago.

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## Appendix

### Appendix 1: Survey Questions

- **Urban farms**
  - ¿Cuál fue su influencia para empezar una huerta urbana?
  - ¿Cómo reaccionó su familia o comunidad al comenzar la huerta urbana?
  - ¿Cuáles son las cosas que usted disfruta de la huerta urbana?
  - ¿Como ha cambiado su huerta con el tiempo?
    - Influenced
    - Knowledge before farming
    - Deciding what to plan
    - Support from social network
    - Selling surplus
    - Benefits from urban farm
- **Disaster/Funding**
  - ¿Cuáles fueron sus primeros pensamientos después de ver su huerta después de María?
  - ¿Como fue la respuesta de la comunidad para ayudarse uno a otro después de María?
    - Damage
    - Government help
    - Effective disaster relief
    - Easy to locate and identify help
    - Programs welcome by community members
    - Funding for UPA

- **Food resiliency**
  - Sufficiency, appropriate, accessible
    - **¿Como ha cambiado el tipo de comida que usted compra a través del tiempo después de involucrase en la huerta?**
    - **¿Donde compra usted su comida?**
    - **¿Cuándo ha sentido que no tiene suficiente comida para usted y su familia?**
      - culturally relevant
      - Enough Food
      - affordable/unaffordable
      - accessibility (transportation/easy to get to)
      - diverse diet
      - Who buys the food
      - How much money is spent
      - How much money was spent with urban garden
- **Food sovereignty/ Changes in food system**
  - **¿Según su experiencia cómo ha cambiado la agricultura en Puerto Rico y / el sistema de comida en los últimos años.**
  - **¿Qué piensa usted de sembrar más productos de comida aquí en Puerto Rico?**
    - Food system post-Maria
    - Role of women
- **Community Support**
  - **¿Qué piensa usted del apoyo de la comunidad en los huertos urbanos?**
  - **cuáles son algunas cosas o costumbres que son culturalmente importantes que los huertos preservan que tienen la esencia de Puerto Rico?**
    - Organization for future disasters
    - Preservation of cultural factors
    - Cultural Significance of Urban Ag Space