

Sustainable Agriculture in Puerto Rico:
MODEL COMMUNITY EDIBLE GARDEN
Project Narrative 2021

Centro Pastoral de Ayuda Social (PASO)
Curated in conjunction with Fiesta4Hope, Inc.

I. Introduction and Relationship to Program Objectives

Centro PASO is seeking funding for the construction of a Model Community Edible Garden: a project that will transform the premises of Centro PASO into an agricultural space for the enhanced education of sustainable farming, as well as a mechanism to sustainably combat local food insecurity. The Model Garden is the first part of a multi-phase Sustainable Agriculture initiative. The garden will be open to the community as a space for inspiration and education towards increasing family economic and food self-sufficiency. The Model Community Edible Garden is part of Centro PASO's broader goal to increase local access to fresh food and inspire youth to revitalize the island's agricultural sector through agro-related businesses. In the long-term, Centro PASO's garden will become the source of both extensive agricultural training programs as well as fresh produce to be sold to the community on a weekly basis and used in the community kitchen.

The Model Garden entails the following:

- Compost Spaces
- Gardening Beds and Planters
- Work benches
- Plants and Seeds (Aromatic, Medicinal, and Edible)
- A Climate Protected Roof Structure
- Vertical Seeding Model
- Hydroponic Cultivation Model
- Siembra del Sofrito Model
- Two Model Irrigation Systems
- A space for planting using recyclable materials

Centro PASO, located in Aibonito, Puerto Rico, provides need-based services to the Aiboniteña community. PASO was founded in 2016, influenced by a study on the needs of the Aiboniteña people that was carried out in 2012. The survey was administered to an average of 400 families, to identify the real needs of the community. Information from the US Census Bureau was used for the sample. In addition to this, discussions were held with different sectors such as social workers, professional counselors, and civic and religious leaders to learn about their different points of view. The results of the study and the focus groups demonstrated that Centro PASO's projects should be directed to families. Centro PASO began offering services to the Aiboniteño community and neighboring towns with volunteers on September 12, 2016 functioning out of an abandoned school. Today, Centro PASO provides counseling, case management, emergency food and medical supplies, and a variety of educational workshops for children and adults. Centro PASO is partnered with Fiesta4Hope, a non-profit whose mission is to support vulnerable communities through the promotion of sustainability.

One of Centro PASO's goals is to promote sustainability within their community by teaching citizens about agriculture, nutrition, farming techniques, and environmental sensitivity. The Model Garden installation will expand PASO's efforts to promote sustainable agricultural practices in their suburban community. The installation of this agricultural system will allow the Aiboniteña people to grow and harvest their own food year-round and expand PASO's efforts to create a healthier, self-sufficient community in Aibonito.

The Model Garden project will allow Centro to expand the focus on sustainable development while also meeting the nutritional needs of Aibonito's food insecure population. For Centro PASO in the community, the goals of the Model Garden installation project include developing Community Guides on sustainable agricultural practices, training community members in agricultural practices, and promoting the adoption of at-home agriculture. For Centro PASO internally, the goals of this project are to strengthen administrative and organizational skills and set a marketing network.

The Centro PASO Model Farm would serve as an example for the Aiboniteña people as a way to respond to the food insecurity that members of the community experience. By expanding the quantity of locally grown fresh produce, increasing control over crop environments, and enhancing collective understanding of sustainable agriculture, the community can become more self-sufficient. Additionally, local sustainable agriculture reduces cost and carbon emissions caused by food transportation and the use of pesticides.

II. Project Goals and Intended Outcomes

Centro PASO's Sustainable Agriculture Initiative is expected to improve the quality and food capacity of the communities in the center of the island by creating a model agriculture project carried out by community volunteers and led by an agronomist from the Agricultural Extension Service. This project includes providing options for different ways of sowing according to the capacity and space for cultivation that people have, through an educational and practical process that combines theoretical, practical and subsistence skills.

Goals and Objectives

- Offer general knowledge related to nature, agriculture, and nutrition.
- Provide an educational program to volunteer community members regarding agriculture and existing planting options for different growing spaces.
- To offer an instrument of survival and support to the family economy for times of food shortage or economic difficulties.
- Provide knowledge of planting products in Puerto Rico and the techniques for planting them, through education and practice.
- Promote school, urban, and community gardens.
- Provide practical teachings on nutrition that promote the production and consumption of healthy foods and a healthy lifestyle.

- Increase the nutritional quality of the inhabitants of our community in general by guiding them to improve their diet using cultivated foods as a healthy, natural and varied food source, important for physical and mental development.
- Promote income-generating opportunities through agriculture.
- Educate on environmental sensitivity contributing to the sustainability of the planet through the inclusion of environmental and ecological training.
- Improve the urban environment and sustainability.
- Contribute to the regeneration and conservation of the environment and its resources.
- Promote entrepreneurial skills and the socio-economic development of the community.
- Increase the relationship between human beings and nature.

III. Project Costs

Name	Description	Size	Quantity	Cost	Total
Elevated Tables Planters and Cement	Elevated Tables	4'X8"	016	\$565.00	\$9,040.00
	Planter /Acera cemento 6'X60'X.25'	360pc	001	\$3.65	\$1,314.00
Shredded Asphalt Gate		1,320pc	018 mtc	\$100.0	\$1,800.00
	Shredded and Rolled Asphalt 3" thick				
	PVC Coated Hex Wire 5'X150'	5'X150'	001	\$650.00	\$650.00
Hydrants**	PVC Pipe ¾" sch 40 & 8 taps	¾"	150pl		\$145.00
Banks	Treated Wood 18" X 36" X 24"	2" X 4"	8	\$65.00	\$520.00
Grillo Walking Tractor	Attachments Included				\$2,500.00
Dump Cart***	All-purpose Dump Cart 20" X 37"		003	\$225.00	\$675.00
Cultivation Medium	Substrate: compost, sand, peat, moss	mtcu	11.5mtc	\$135.00	\$1,552.00
Wood Pergola	Wood Pergola	12'X14'	001	\$42.00	\$7,056.00
Basic Tools	Shovel, Pickaxe,		010	\$200.00	200.00
Plants	Seedlings and Seeds			\$700.00	\$700.00
Cleaning	Conditioning, cleaning, debris removal, land leveling	500pc	002	385.00	\$770.00

**all information subject to change*

Utilities	\$300.00
Other Costs	1,000.00
TOTAL	\$28,922.00

Notes:

*Raised tables made of “Heavy Gauge” metal with a ½” “Expanded Metal” floor base covered with “Ground Cover” and 2” X 6” raised wood edges bolted to the metal base. See Illustration

** Hydrants: hydrants will be located in the central aisle, located alternately and anchored to the bases or legs of the raised tables. ¾” diameter PVC Sch 40 pipes will be used. Ball type taps will be installed at an angle of 45°

*** Dump Cart: trolley-type cart made of plastic, with a metal frame. It has 4 wheels for greater stability and with the capacity of manual emptying.

**** Pergola: built in treated wood, size 2” X 6” with a wooden floor and roof covered with polycarbonate sheets. The final size of the pergola is 12 feet by 14 feet and at a height of ten feet. The pergola will be anchored to the ground with wooden posts installed to the cement. Impeabilizing dye will be used. Solar lamps

IV. Data and Context on the Needs to Be Addressed

According to the 2016 U.S. Census, the per capita income in Aibonito is \$ 9,133 less than that of Puerto Rico (\$ 11,688) and three times less than that of the United States (\$ 29,829). The region is considered one of the poorest in the nation with 47% of its population living below the poverty level, a higher rate than Puerto Rico (45.1%), and significantly higher than the nation's 15.1% (2016 U.S. Census American Community Survey). Finally, only 15.3% of the population have a baccalaureate and 5.6% have a professional or Master's degree and the unemployment rate is 9.1%, much higher than that of the Nation of 3.9% (2016 U.S. Census American Community Survey). With high poverty and unemployment rates, many people of Aibonito are at high risk for food insecurity and malnutrition.

The difficult situations Puerto Rico has gone through have led PASO to understand the importance of agriculture on the island, mainly due to its geographic isolation. The large amount of food that needs to be imported into Puerto Rico, among other aspects, makes the population more vulnerable to food insecurity.

Agriculture was abandoned on the island when industrialization came to our country, and this was a big mistake. Now we begin to see how necessary it is to resume the production of our own food. Unfortunately, however, we have lost the ability to produce it. In response to the devastating crisis that the island experienced due to the lack of food after Hurricane Maria, the PASO Center now intends to create a model agricultural project with the participation of volunteers who have been trained in agriculture and horticulture by the Agricultural Extension Service Office.

In 2015, the island's median income was \$18,626. As of 2017, it slightly increased to \$19,343. However, this increase did not guarantee that locally grown products were made accessible to all. For a woman who gathers and sells the acerola plants that she grows on her patio, a dish valued between \$8 and \$10 is out of her budget. As in many parts of the world, the existence of fresh local products does not guarantee that everyone has the resources to pay for them.

A 2015 study, of which the results have now been published under the title “Module on Food Security of Puerto Rico 2015”, sought to estimate 'the percentage distribution of adults, who are residents in Puerto Rico, affected by food security levels, based on the classification system developed by the Federal Department of Agriculture (USDA). One statistic showed that 9.0% of the 18 years or older population in Puerto Rico fell under the category of "very low food security."

According to the survey, food security is defined as “the permanent availability of sufficient basic food supplies to sustain the constant increase in food consumption and to compensate for fluctuations in production and prices.” The fact that Puerto Rico imports a large amount of its food makes the island’s habitants vulnerable to food insecurity. The concept of “food insecurity” originated at the World Food Conference, held in the 1970s, after a food crisis caused a shortage of starchy foods and an increase in prices in world markets. The report says, "this makes us realize that there are vulnerable people with limited access to food and that food security should be considered as one of the rights that individuals and families have (Committee on World Food Security, 2012).”

21.7% of people indicated that, in the last 12 months, there were instances when they had to eat less food or stop eating one of their daily meals due to a lack of money. Approximately a quarter of these (25.8%) did so almost every month. 44.3% of people with food insecurity perceived their health as fair or poor. The percentage was higher in women compared to men (47.6% and 38.7%, respectively). Recent pandemic related shutdowns and shipping delays further exacerbated geographic vulnerabilities related to fresh food access.

Among people with food insecurity, there was a higher percentage of people having some physical, mental or emotional problem that somewhat limited their activities, than there was among people with food security (28.0% versus 14.1%).

Among people with food insecurity, there were higher percentages of people with high blood pressure (43.2%) and depression (25.9%) compared to people with food security, where the percentages were 37.0% and 12.5%, respectively. People who, in the past 12 months, could not consult a doctor at any time for financial reasons, were 4.4 times more likely to belong to the group with food insecurity, than people who were able to consult a doctor at any time in the past

12 months. People diagnosed with a depressive disorder are 2.7 times more likely to belong to the group with food insecurity than people who have not been diagnosed with a depressive disorder.

An FAO report on "The State of Food Security and Nutrition 2017", shows that the pervasiveness of undernourishment in the Caribbean, which refers to an insufficient food diet due to the digested quantities and the lack of nutrients, was 17.7 % for 2016. From the most relevant data in this study, it is estimated that 33% of the 18 or older population in Puerto Rico experienced food insecurity. "One of the most relevant results from this survey is related to poverty and its impact on food insecurity. The study concluded that people with an income of less than \$25,000 are 3.3 times more likely to belong to the group with food insecurity, than people with an income of \$25,000 or more", said Maribel Santiago, Manager of Projects at the Institute and main author of the study.

Centro PASO is located in an Opportunity Zone in the territory of Puerto Rico and the county of Aibonito with the census tracking number of 72009250400.

V. The Organizations and Communities Involved in the Project

Centro PASO has an extensive network of community partners throughout the island of Puerto Rico. The Agricultural Extension Service uses Centro PASO's facilities to conduct agricultural and gardening workshops. Agronomist Neslie Laboy oversees Centro PASO's agricultural programs, will be leading the Sustainability initiatives, and recommended PASO as one of three non-profit organizations that they feel should receive grant funding for their initiatives.

In the past four years, some organizations that have collaborated with Centro Paso include:

Agricultural Extension Service	The COSMMA
Fiesta4Hope, Inc.	FEMA
The National Guard	Siembra Tres Vidas (local farm)
The Menonite Hospital	The Cooperative of San Jose and Aibonito
The Menonite Hospital CIMA	The Office of Control of Puerto Rico
Catholic Church of Puerto Rico	The Office of the Elderly
The Protestant Church of Puerto Rico	The Second Cultural Center of Chicago
The Government of Puerto Rico	Congressmen Luis Gutiérrez
The Administration Services of Mental Health and Addiction	The Department of Family Office in Aibonito
The Muslim Community of Puerto Rico	Casa Pensamiento de Mujer del Centro
The Popular Bank of Puerto Rico	Alas de la Montaña
The Hispanic Association of New York	Center for Victims of Violence

Representatives from these organizations partner with PASO's educational workshops and disaster relief efforts to deliver valuable supplies and information to the most vulnerable community members.

Centro PASO is led by Director Margarita Centeno. The Board of Directors is led by President Mary Miranda, former Human Resources Manager, at the Eaton Corporation. Other board members and their experience include:

- Betty Blasinni, Talent Manager, Baxter International
- Domingo Torres Zayas, Executive Director, Mennonite Health Centers in Puerto Rico
- Rita Rivera, Director, WIC Program
- Iris Ortiz, Community Leader
- Rafael Serrano, Branch Director, Banco Popular
- Rafael Colón, Financial Director, Aibonito City Hall
- Padre José Ramón Figuera, Local Pastor
- Rosa Fernandez

Centro PASO plays a critical role in Puerto Rico in the wake of natural disasters and has been successful in distributing direct and immediate aid to its community despite lack of funding or stable resources. The following contains data regarding fiscal and capital direct relief provided by PASO to those affected by such disasters:

VI. Summary of Centro PASO's services

August 2017 to June 2018

Post Hurricane Maria Services

- | | |
|--|---|
| 1. Case Management: 2,659 Impacted Families | 4. Family food purchases: 2,699
estimated value \$ 425.00 = \$67,475 |
| 2. Community Lunches: 8,220
(Estimated value \$ 3.00 per person = \$24,660 total) | 5. Individual food purchases: 592
estimated value \$15.00 = \$8,880.00 |
| 3. Community Dinner: 2,917 (estimated value \$ 2.00 per person = \$5,834.00) | 6. Financial Aid: 37 families: \$3,424.4 |

August 2018 to June 2019

- | | |
|--|---|
| 1. Case Management: 130 Impacted Families | 5. Individual and / or Family Financial Assistance: 34 cases for a total of \$4,442.74 in aid |
| 2. Shopped for clothes: 63 cases | 6. Number of educational workshops for children, youth and adults: 13 |
| 3. Food purchases distributed: 70 | |
| 4. Home and / or orthopedic / prosthetic equipment: 36 cases | |

August 2019 to December 2019

1. Case Management: 285 Impacted Families
2. Shop clothes: 134
3. Food purchases distributed: 185
4. Home and / or orthopedic / prosthetic equipment: 77
5. Financial Aid: 48 for a total of \$4,127.60
6. Water boxes Families: 4 cases
7. Number of workshops for children, youth and adults = 47 children and 77 adults

Services offered: January 2020 Earthquakes / Earthquakes

Response to earthquakes that occurred in Puerto Rico

1. Case Management: 65 Impacted Families
2. Financial Assistance: \$9 Value = \$699.77 total
3. Shopping: 42 cases
4. Clothing: 31 cases
5. Water: 7 cases
6. Equipment: 4 water heaters, 1 walker, 1 bedside table, 1 position bed

Services offered: February 2020

Post-tremor Services

1. Case Management: 56 Impacted Families
2. Financial Assistance: 13 Value = \$1,200.84 total
3. Shopping: 34 cases
4. Clothing: 43 cases
5. Water: 6 cases
6. Equipment: 13 3 water heaters, 1 walker, 1 Wheelchair, 1 table stove, 3 position bed, 2 Baby carriers, 2 Cars seats
7. Legal Orientation: 50 cases
8. Family purchases: 1,159 cases
9. Equipment 15: 2 water heaters, 1 walker, 1 file 2 position bed, 2 baby car, 2 portable towel, 3 wheelchair, 1 room juice, 1 cot bed, 1 car seat
10. Legal Orientation: 1
11. Financial assistance 9 cases = \$1,035.87 total

Services: March to June 2020 (Pandemic COVID 19)

PASO's response to the Coronavirus crisis:

- Case Management 50 Impacted Families
- Family purchases: 1,159
- Clothing: 21 cases
- Water: 2 cases
- Equipment 15: 2 water heaters, 1 walker, 1 file 2 position bed, 2 baby car, 2 portable towel, 3 wheelchair, 1 room juice, 1 cot bed, 1 car seat
- Legal Orientation: 1 case
- Financial assistance 9 cases = \$1,035.87 total

VII. Accountability and Transparency:

The detailed records above show Centro PASO's ability to measure the impact of their projects in quantifiable values. From 2017 to 2019 Centro PASO has aided 3,245 families, an average of 1,025 families a year, residing in the Aibonito area. The number of families impacted by this project though restrictions related to the COVID-19 pandemic may affect this number. Also, the quantifiable impact of the maintenance of a fresh food source that will be accessible and distributed directly to those families most in need will be monitored by the Department of Family. Information regarding the project will be disseminated via publications created by PASO's partner organization, Fiesta4Hope. As a primary partner organization, Fiesta4Hope publishes newsletters describing the goals, progress, and outcomes of Centro PASO's projects. Additionally, Fiesta4Hope publishes research reports which focus on Puerto Rican issues. In an effort to remain communicative and transparent with their community and all benefactors, Fiesta4Hope works with Centro PASO to consistently publish updates on social media platforms as well, in email newsletters, and organization sponsored research papers. All progress regarding the Urban Agriculture Small High Tunnel Outreach Program will be reported to the community at large through all of these avenues.

Since their founding in 2016, PASO has proven to be a fiscally responsible organization. To maintain the integrity of the non-profit organization, PASO has separate bank accounts for funds to maintain the community center and funds that are intended for direct relief to the community. Additionally, as soon as a donation is received a tax-deductible receipt is issued to the donor.

VIII. Contact

Any questions, comments, or concerns about Centro PASO's Sustainable Agriculture Model Community Edible Garden Program can be directed to the following:

Margarita Centeno

Executive Director

centropasoinc@gmail.com