

Increasing Socio-economic Resilience of Utuado Farmers through Agritourism

Huda Khalife, Southern Sustainable Agriculture Research & Education (SARE) Project Team

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SARE Disclaimer

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Abstract

Utuaado, Puerto Rico, is a region that has witnessed many natural hazards, most notably Hurricane Maria that struck the island in 2017 and irrevocably altered its landscape to this day (Holladay et al., 2019; Ortiz, 2020; Benach et al., 2019). In combination with layers of pre-existing vulnerability, such as socio-economic vulnerability and food insecurity, this has made for a disaster situation (Klein, 2018; Benach et al., 2019; Garriga-López, 2019). However, this disaster has also opened up a window for citizens to rise up and self-organize for the revitalization of their shared communities and spaces; in the agricultural sector, this has manifested as a drive towards a stronger regional economy and the building of food sovereignty through agritourism (Holladay et al., 2019).

In contribution to the larger Southern SARE project, my Master of Sustainability Solutions (MSUS) Culminating Experience (CE) project aims to support this local movement through a collaboration with key local farmers to identify local farm assets through the reconstruction of solution strategies (Forrest & Wiek, 2014) and the designing of an educational program for the adaptation and scaling of identified sustainability solutions to other regional farms (Fraser & Galinsky, 2010). The intended outcomes for this project include (1) the building of community resilience and livelihood opportunity; (2) the increasing of awareness and knowledge of agritourism best practices; (3) the dissemination of knowledge on practices to increase farm- and visitor-readiness; (4) and the strengthening and interconnection of the regional economy. Based on the array of exemplary farms and enterprises that I have conducted research on and engaged with through this project, I have witnessed the potential that the widespread dissemination of agritourism best practices offers for the progressive building up of the regional economy in Utuaado, Puerto Rico.

Background & Literature Review

Problem Description

The hurricane that struck the island of Puerto Rico in September of 2017 was one that would permanently alter the lives of many for years to come; loved ones were lost, basic needs were far out of reach, and many had become internally displaced (Garcia-Lopez, 2018). However, the impacts of this natural hazard were not felt equally by all: What came as a disaster to some, was easily recoverable from by a small minority of others (Garcia-Lopez, 2018). Directly contributing to the experiencing of natural hazards as disasters is the level of vulnerability of a group of people to major impacts (Wisner, et. al, 2012). In one of the hardest hit regions of Puerto Rico, the municipality of Utuaado, this progression of vulnerability includes a lack of livelihood opportunity (Klein, 2018; Garriga-López, 2019), a large proportion of citizens living below the poverty line (U.S. Department of the Treasury), a lack of access to basic necessities and high quality food (Klein, 2018; Benach et al., 2019), increasing farm abandonment and outmigration (Garriga-Lopez, 2019; Klein, 2018), and a high level of dependence on imported food (Klein, 2018).

To add to this is the “national and federal government’s inept...responses...histories of unjust planning, and colonial-neoliberal institutions” (Garcia-Lopez, 2018). This includes a US-imposed shift away from agricultural production, subsequent food import dependence, and an overall lack of public infrastructure investment (Klein, 2018; Valentin Ortiz, 2020). The unaddressed destruction after Hurricane Maria (2017) across all sectors has had progressively exacerbating long-term and dispersed effects on the health, education, and economic situation of Puerto Rican citizens, many of which have opted to relocate to the US mainland or elsewhere in search of better quality of life and greater livelihood opportunity (Klein, 2018). While Puerto Rican farmers historically used traditional planting practices conducive to environmental integrity and biodiversity, the shift to industrialization and mono-cropping guidelines dictated to farmers caused much of the indigenous knowledge and practice to be lost (Klein, 2018). Adding to the urgency, COVID-19 has worsened the situation for many families that suffer from extreme food insecurity (Florida, 2020). While this complex web of deteriorating issues is a dire reality for communities like the ones in Utuado, the government continually fails to invest in basic infrastructure, underpinning much of the problem at hand (Holladay et al., 2019; Ortiz, 2020; Klein, 2018).

Solution Space

Given the range of issues stemming from high socio-economic vulnerability in Utuado, much research has been conducted that explores existing community-driven solutions. Research shows that self-organization can build community resilience, in turn supporting “sustainability, public health and risk reduction” (Holladay et al., 2019). In fact, the related concept known in Puerto Rico as auto-gestión, or autonomous organizing, refers to the same type of community-driven action that has been at the core of post-disaster recovery and rebuilding on the island (Garriga-López, 2019). In the context of survival needs and desire for decolonization, this type of community organizing has converged around building food sovereignty for its transformative potential in the ‘building back better’ of Puerto Rico communities (Garriga-López, 2019). In addition, food sovereignty is at the heart of addressing an urgent issue surrounding extreme food insecurity and a need for access to healthy and high-quality food (Florida, 2020).

Intricately tied to this vision of working towards food sovereignty are the concepts of agroecology and small-scale farming, which have also been shown to demonstrate resilience in the face of disaster risk, as in the case of recurring hurricanes (Garriga-López, 2019). In Utuado, a promising solution for socio-economic development that communities are mobilizing towards is agritourism (Holladay et al., 2019). Agritourism is an emerging economic activity that combines agroecological methods and tourism for diversified livelihood potential, sustainable practices, cultural preservation and appreciation, and smaller scale food sovereignty (UN, 2020; Mendez-Toro, 2019; Holladay et al., 2019). While certain types of tourism have proven to demonstrate negative impacts on environmental and cultural integrity in the past, community-based tourism that draws on the individual assets of community members and is coupled with sustainable development goals has proven to foster social-ecological resilience (Holladay et al., 2019). Despite the wide range of long-term positive impacts of agritourism, the

new push for agritourism among Utuado community organizers, and the presence of farms and farmland, many farms have been abandoned in a search for better livelihood opportunity (Holladay et al., 2019). Based on the transformative potential of agritourism for the Utuado community in terms of positive public health outcomes, social and environmental resilience, and disaster risk reduction (Holladay et al., 2019), local Utuado farmers would benefit from increased agritourism knowledge dissemination and practice for the building of a stronger regional economy.

Much research has been conducted on the impacts of sustainable farming in the past. Among the research yielded is the Framework for Assessing the Sustainability of Natural Resource Management Systems (MESMIS), an indicator-based sustainability assessment framework which was developed in the context of natural resource management systems throughout the Latin American context (Astier et al., 2010). This framework is a valuable context-sensitive tool for the evaluation and measurement of success in the pathway towards farmer success through agritourism practices. Additionally, given the existence of both agritourism pioneers in Utuado as well as a significant population of farmers still in development, the Forrest & Wiek (2014) solution pathway reconstruction framework is another valuable tool for the strengthening of the regional economy. This tool provides a connection between economy players at different stages in order to leverage existing local farm assets for the strengthening of other regional farms. Using these two well-established tools and others, the dissemination of agritourism knowledge and practices can be explored for the building of socio-economic resilience in Utuado.

Project Methods

In this project, I focus in on an array of regional sustainable farms and enterprises, and delve deeper into the solution pathways of a few exemplary farm- and visitor-ready farming entities in the region in order to develop an agritourism intervention based on sustainability, resilience, and disaster management practices and principles to support other farms in preparation for the full operation and accommodation of visitors. My project consists of three major parts:

Part I. Identifying regional sustainability solutions, which involves:

1. Developing surveys for preliminary data collection on key actions, tools, and resources for farm success;
2. Creating a list of criteria for the identification of sustainable farms and enterprises; and
3. Conducting background research on identified regional sustainable farms and enterprises.

Part II. Reconstructing pathways to success of regional sustainable farms and enterprises, which involves:

4. Developing and conducting interviews for a more detailed follow-up of a few exemplary farms;
5. Reconstructing transition pathways based on interviews; and
6. Creating a list of criteria for the successful transition or development of a farm or enterprise.

Part III. Developing an education and training program to support other farmers in learning from this experience, which involves:

1. Identifying pertinent theory of change, focal risk factors, as well as program scope and stakeholders; and
2. Developing a program addressing main elements and indicators, pilot program and measures, and training and implementation based on reconstructed pathways.

Following are the supporting frameworks used, along with a short description of their role in this project:

1. The **Transformational Sustainability Research (TSR) framework** (Wiek & Lang, 2016) supports the building of a community-wide current state analysis, a sustainability vision, and leads into the backcasting of sustainability solutions.
2. The **Framework for Analyzing, Assessing, and Improving Enterprises Towards Sustainability** (Wiek & Basile, 2020) provides the basis for which to comprehensively analyze the sustainability performance of an enterprise, and is here used as a tool to highlight exemplary farms and enterprises and their best practices.
3. The **Principles for a Sustainable Local Food Economy** (Wiek, 2020) support in the regional economy framing of the identified solutions, and in doing so tie the smaller scale individual enterprise efforts to the larger goal of systemic change at hand.
4. The **Framework for Assessing the Sustainability of Natural Resource Management Systems (MESMIS)** is a method developed specifically in the context of small farms in Ibero-America, and is employed to evaluate the outcomes related to increased farm resilience, sustainability, and economic activity (Astier, et al., 2012).
5. The Forrest & Wiek (2014) **Transition Pathway Reconstruction framework**, representing the strategy development step of the TSR framework, supports in the reconstruction of sustainability solutions (identified agritourism solutions) implemented on the interviewed farms, which allows us to identify evidence on what worked, where, how, and why, and adds credibility to the proposals for new strategies.
6. The Fraser & Galinsky (2010) **Intervention Research Approach** supports in the adaptation and implementation of the proposed, evidence-supported strategy to other regional farms through program development best practices.




Part I: Identification of Regional Sustainability Solutions

Criteria for Farm Sustainability & Selection

The Criteria for Farm Sustainability (see *Table 1*) as employed in the identification of exemplary farming and agritourism player profiles is adapted from the *Framework for Analyzing, Assessing, and Improving Enterprises Towards Sustainability* (Wiek & Basile, 2020), the *Principles for a Sustainable Local Food Economy* (Wiek, 2020), and the Wiek & Forrest (2021) Solutions

template. These tools were developed by experienced sustainability scientists and scholars at the School of Sustainability at Arizona State University (ASU) based on the intensive study of various sustainable enterprises around the world and their exemplary features. As such, each featured criteria in the list below is backed by one or more real-life examples somewhere in the world. [Insert something about the agritourism definition]

The Criteria for Farm Sustainability has been employed in this project as a tool to highlight successful sustainability features within exemplary farm and enterprise cases. While the following list of farms or enterprises may not satisfactorily fulfill all of the criteria in the different categories, they have been presented below by virtue of overall strong performance in certain categories or by virtue of individual criteria that they exemplify. Viewing this array of strong features in conjunction, we can begin to envision a well-rounded and highly successful exemplary sustainable farm enterprise.

Criteria for Farm Sustainability		
	Product/Service	<ul style="list-style-type: none"> ● Fulfillment of a basic/sufficient human need (e.g. food, clothing, etc.) ● Biodegradability/non-toxicity ● High quality ● Fair pricing (i.e. is the price reasonable based on the production cost and inputs?) ● Fair accessibility (i.e. if the pricing is high, is there a flexible payment method or a sliding scale based on the ability a customer to pay?)
	Environmental Performance (Operations)	<ul style="list-style-type: none"> ● Closed-loop Water, Material, Substances/Emissions systems (i.e. is pollution and waste avoided? Are materials reused?) ● 100% Renewable energy use ● Local sourcing ● Positive contribution to local environment ● Environmentally friendly workforce lifestyle & volunteerism
	Human/Social Performance (Operations)	<ul style="list-style-type: none"> ● Meaningful employment & work activities ● Employment of individuals with disabilities ● Partnership/employment opportunities with local universities/colleges ● Healthy (safe and happy) work environment ● Healthy work-life balance (i.e. work hours at or below 40, overtime only rarely, provision of vacation and sick-leave time, etc.) ● Health promotion program offering and participation (e.g. yoga sessions for employees) ● Sustainability performance monitoring and improvement ● Volunteerism for humanitarian/social causes ● Capacity building program offering and involvement (e.g. skill building workshops provided to employees) ● Positive contribution to community wellbeing





	<p>Economic Performance (Operations)</p>	<ul style="list-style-type: none"> • Sufficient revenue generated to cover costs • Fair/just wages to employees • Fair/just highest to lowest wage ratio • Redistribution of excess profit to employees/community/non-profit organizations
	<p>Ownership & Decisions</p>	<ul style="list-style-type: none"> • Observation, listening, reflection and learning inform management and steering practices • Collective ownership/steering; workforce and marginalized community participation (i.e. is the business co-owned, or do the employees or marginalized/minority groups of community members have a voice in decision making matters?) • Qualitative growth strategy with limits to growth • Enterprise size and structure complexity align with human capacity • Sustainability planning • Promotion of sustainability beyond enterprise boundaries leveraging power and influence
	<p>Regional Economy Offerings</p>	<p>Does this enterprise contribute to one or more the goals of the regional economy, as defined as follows:</p> <ul style="list-style-type: none"> • Over 50% of food consumption and production in the regional economy is local • Over 50% of food production is healthy • There are sustainable local businesses in all sectors of the food economy • The majority of local food businesses engage in sustainable practices • Local support organizations provide all relevant support functions for sustainable food businesses • Consumers recognize and support sustainable local food businesses • There is justice (labor rights, wages, food access, etc) in the local food economy
	<p>Agritourism Integrity</p>	<p>Does this farm or enterprise align with the definition of agritourism, as defined as follows:</p> <ul style="list-style-type: none"> • The host site is a farm or ranch, or any agricultural, horticultural, or agribusiness operation • A destination for education, recreation, and the purchase of farm products • An opportunity for visitors to connect with the natural or working landscape and farm experience • Provides an additional source of revenue for the host farm

Table 1. Criteria for Farm Sustainability (Wiek & Basile, 2020; Wiek, 2020; Wiek & Forrest, 2020; University of Vermont; Virginia Cooperative Extension)

Exemplary Farmers & Regional Economy Players

Research points to the fact that self-organization is a powerful tool for building community resilience, and in Puerto Rico communities specifically, this has converged around the building of food sovereignty for its transformational potential in addressing food insecurity and the need for increased access to healthy and high quality food (Garriga-López, 2019; Florido, 2020). In fact, to this end communities in Puerto Rico have specifically been mobilizing towards agroecology, small-scale farming, and agritourism (Garriga-López, 2019; Holladay et al., 2019). Agritourism has been proven to foster social-ecological resilience, and bring about positive public health and disaster risk reduction outcomes (Holladay et al., 2019).

I highlight a few of these exemplary sustainable farms and enterprises in the region of Utuado and in other regions nationally, and present them using the Criteria for Farm Sustainability (see Table 1 above) in order to better understand their sustainability features, their contributions to the regional economy, and by extension their areas of potential improvement (note: information gaps or areas of potential improvement are indicated in italics). In creating an inventory of exemplary farm and enterprise features locally, we are able to begin the first step for the transfer of sustainability solutions to other up-and-coming farms and enterprises in the region. The sustainable farm and enterprise profiled below are as follows:



1. Finca Amasar
2. Permaculture Institute
3. Root & Rise farm
4. Cafe Nativo
5. Frutos del Guacabo
6. Queso Vaca Negra
7. Plenitud PR
8. HidrOrgánica
9. Siempreverde
10. Agro Empresarias de Puerto Rico






Exemplary Case #1: Finca Amasar



www.amasar.net | (787) 235-3017 | Jayuya

Finca Amasar is a woman-led breadfruit product-focused agritourism farm that not only produces highly nutritious food products, but also engages in community empowerment through the local breadfruit crop and provides education on nutritious and healthy eating.

	<p>Product/Service</p>	<ul style="list-style-type: none"> ● Main product: All-purpose Breadfruit Mix (flour alternative), and Breadfruit Pancake & Waffle Mix. ● Other products: coffee, cacao, plantains, bananas, taro, soursop fruit and citrus fruit. ● Fulfills basic human need of nutritious and healthy food. ● High quality product: Gluten-free, highly nutritious superfood-derived value added products. ● It is accessible in multiple local markets and stores around Puerto Rico, in addition to the main farm location, and is available for shipping to the US as well. ● Products are accessible in different stores, but can be priced more fairly based on affordability for the general population, comparative products, and input pricing.
	<p>Environmental Performance</p>	<ul style="list-style-type: none"> ● Pesticide-free crops ● Agroforestry ● Input products are sourced locally and on-site ● Donated hundreds of breadfruit trees in partnership with <i>Trees that Feed Foundation</i> to women agro-entrepreneurs in schools and island-wide. ● Partner with local schools to teach planting, growing and harvesting. ● Donated thousands of breadfruit trees to farmers in surrounding municipalities along with the USDA to provide farmers with additional income streams. ● <i>No data on Closed loop water, Material, Substances/Emissions systems?</i> ● <i>Renewable Energy use?</i>




	<p>Human/Social Performance</p>	<ul style="list-style-type: none"> ● Woman-lead enterprise ● Produced by Puerto Rican farmers ● Advocate for community education on local food and purchasing (freshness, nutritional value, support of local community members), as well as sustainability (in preserving a beautiful and healthy country for future generations through sustainable practices), and fair trade (and fair pay of all workers). ● Has a strong compliance with health and security guidelines. ● Provides meaningful employment to individuals facing prior need for relocation for better opportunity. ● <i>Healthy work-life balance?</i> ● <i>Health promotion programs?</i> ● <i>Employment of individuals with disabilities?</i> ● <i>Sustainability performance monitoring and improvement?</i>
	<p>Economic Performance</p>	<ul style="list-style-type: none"> ● The enterprise generates sufficient revenue to cover costs of operations and management, and both advocates for and pays fair wages to employees. ● <i>Just ratio between highest/lowest wage?</i> ● <i>Redistribution of excess profit?</i>
	<p>Ownership and Decisions</p>	<ul style="list-style-type: none"> ● Envision a cooperative model for Amasar in the future, where farmers can come together and have a secure place to sell their produce. ● Pushed for the REAP program, under which farmers can receive up to 25% of the cost for Photovoltaic Systems (grid tie, off-grid). ● <i>Qualitative growth strategy? Planning for sustainability?</i> ● <i>Observation, listening, reflection and learning informing management and steering practices?</i> ● <i>Collective ownership/steering; workforce and marginalized community participation?</i>
	<p>Situation in Regional Economy</p>	<ul style="list-style-type: none"> ● Marisol Villalobos serves as the secretary of Agroempresarias de PR, which serves to train and empower over 80 female agro-entrepreneurs in Puerto Rico. ● Marisol Villalobos advocates for community education on local food and purchasing (freshness, nutritional value, support of local community members), as well as sustainability (in preserving a beautiful and healthy country for future generations through sustainable practices), and fair trade (and fair pay of all workers).
	<p>Agritourism Integrity</p>	<ul style="list-style-type: none"> ● The host site is an agricultural operation providing education and the purchase of farm products, and an additional source of revenue for the host farm




Exemplary Case #2: Instituto de Permacultura de Puerto Rico



www.permaculturapuertorico.org (inactive site) | (787) 846-4505 | Barceloneta

The Institute of Permaculture of Puerto Rico is a non-profit community-based organization engaging in education and sustainable development throughout Puerto Rico communities through permaculture.

	Product/Service	<ul style="list-style-type: none"> • Provides economic, social, and cultural development, as well as training and education to communities on permaculture.
	Environmental Performance	<ul style="list-style-type: none"> • Practices and disseminates the practice of permaculture throughout Puerto Rico.
	Human/Social Performance	<ul style="list-style-type: none"> • Offers educational workshops and talks to communities regarding sustainability and resilience in the face of disasters. • Organizes activities and programming, such as weekend camps, for groups of all ages to practice orchard planting, compost, learn about medicinal plants, engage with ecological construction, share ideas and create projects. • Engages with schools and higher level educational institutions to provide courses as a part of degree requirements, and works towards creating a full educational curriculum. • Supports in the creation of community gardens. • Healthy work environment surrounded by nature, and regular safety inspections internally and externally. • Healthy work-life balance with work hours from 6am to 12pm (4 hours in a day). • <i>No current employment of individuals with disabilities.</i> • <i>No health promotion program offering and participation.</i> • <i>No current sustainability performance monitoring and improvement.</i>

	<p>Economic Performance</p>	<ul style="list-style-type: none"> • Non-profit organization 501(c)3, organized under Puerto Rico law as a community-based organization. • <i>Wages of \$7.25 hourly (minimum wage) to employees.</i> • <i>No data on economic viability or fair/just highest to lowest wage ratio.</i>
	<p>Ownership and Decisions</p>	<ul style="list-style-type: none"> • Woman-owned • Listening to employees inform management practices, as their field knowledge is understood as valuable. • Enterprise is comprised of 100 cuerdas and 7 transitional employees. • <i>Currently no qualitative growth strategy with limits to growth, or sustainability planning.</i> • <i>Currently no data on Collective ownership/steering; workforce and marginalized community participation.</i>
	<p>Situation in Regional Economy</p>	<ul style="list-style-type: none"> • Advocate for and provide development and training surrounding permaculture and healthy food cultivation. • Empower the next generation of farmers and entrepreneurs by pushing for established curriculum in educational institutions. • Regular engagement with neighboring farmers, including product exchange.




[Agritourism integrity needs to be assessed beyond this point]




Exemplary Case #3: Rise & Root Farm



<https://www.riseandrootfarm.com> | Email: farmer@riseandrootfarm.com | Chester, NY, USA

Rise and Root Farm is a woman, intergenerational, multi-racial, and LGBTQ-led farm that is rooted in social justice values and works towards the building of a more equitable food system by creating access and providing education and empowerment to marginalized communities.

	<p>Product/Service</p>	<ul style="list-style-type: none"> ● Fulfills basic human need of access to local, nutritious and healthy food ● High quality produce ● Mission to bring healthy, affordable, locally grown food to New York City residents, particularly those living in low-income communities.
	<p>Environmental Performance</p>	<ul style="list-style-type: none"> ● Promote grounding and stewardship of the land. ● Offer community days in which community members are invited to learn experientially and participate in farm work. ● <i>Closed-loop Water, Material, Substances/Emissions systems?</i> ● <i>Renewable energy?</i>
	<p>Human/Social Performance</p>	<ul style="list-style-type: none"> ● Woman, intergenerational, multi-racial, and LGBTQ-led farm ● Prioritize serving marginalized communities and communities of color ● Provide an inclusive, welcoming, healthy and happy work environment ● Provide education in schools on where food comes from, and offer internships teaching youth the history of agriculture and the African American and Indigenous experience ● Creating an understanding of the connection between




		<p>food, history and culture</p> <ul style="list-style-type: none"> • Rooted in social justice work by growing food and community beyond city boundaries and building a more equitable food system • <i>Partnership/employment opportunities with local universities/colleges?</i> • <i>Healthy work-life balance?</i> • <i>Health promotion program offering and participation?</i> • <i>Sustainability performance monitoring and improvement?</i>
	Economic Performance	<ul style="list-style-type: none"> • Keeping business afloat in COVID-19 • Ways to support the farm: Buying plants from spring plant sale, shopping for produce/item pick up, buying groceries through Chester Ag Center's online store, donating groceries to local food pantries, donating plants to community gardeners and farmers, and donating to Rise & Root farm • <i>Sufficient revenue generated to cover costs?</i> • <i>Fair/just wages to employees? Fair/just highest to lowest wage ratio?</i>
	Ownership and Decisions	<ul style="list-style-type: none"> • Collaborative and cooperative decision-making among four main farmers • <i>Qualitative growth strategy with limits to growth?</i> • <i>Planning for sustainability?</i>
	Situation in Regional Economy	<ul style="list-style-type: none"> • Work with nonprofit food justice organization Just Food; helped found Farm School NYC; worked in various community gardens and farmers' markets in Brooklyn and the Bronx; and founded the Black Farmers and Urban Gardeners Conference • Promote increasing access to local food consumption and production in marginalized communities




Exemplary Case #4: Cafe Nativo



<https://www.facebook.com/cafenativojayuya/> | (787) 315-7881 | Jayuya

Puerto Rican coffee producer and seller providing education on conservation practices while engaging in agritourism, operating mostly on solar energy and maintaining a low ecological footprint.

	<p>Product/Service</p>	<ul style="list-style-type: none"> ● Farm and storefront that produces and sells local Puerto Rican coffee ● Provides cottage living space ● <i>Fair pricing?</i> ● <i>Fair accessibility?</i>
	<p>Environmental Performance</p>	<ul style="list-style-type: none"> ● Provides education on conservation practices ● Operates on a design model with a low ecological footprint ● Uses solar energy that contributes to 80% of the farms operations ● <i>Environmentally friendly workforce lifestyle & volunteerism?</i>
	<p>Human/Social Performance</p>	<ul style="list-style-type: none"> ● <i>Meaningful employment & work activities?</i> ● <i>Employment of individuals with disabilities?</i> ● <i>Partnership/employment opportunities with local universities/colleges?</i> ● <i>Healthy (safe and happy) work environment?</i> ● <i>Healthy work-life balance?</i> ● <i>Health promotion program offering and participation?</i> ● <i>Sustainability performance monitoring and improvement?</i> ● <i>Volunteerism for humanitarian/social causes?</i> ● <i>Capacity building program offering and involvement?</i>



		<ul style="list-style-type: none"> • <i>Positive contribution to community wellbeing?</i>
	Economic Performance	<ul style="list-style-type: none"> • <i>Sufficient revenue generated to cover costs?</i> • <i>Fair/just wages to employees?</i> • <i>Fair/just highest to lowest wage ratio?</i> • <i>Redistribution of excess profit to employees/community/non-profit organizations?</i>
	Ownership and Decisions	<ul style="list-style-type: none"> • <i>Observation, listening, reflection and learning informing management and steering practices?</i> • <i>Collective ownership/steering; workforce and marginalized community participation?</i> • <i>Qualitative growth strategy with limits to growth?</i> • <i>Enterprise size and structure complexity align with human capacity?</i> • <i>Sustainability planning?</i> • <i>Promotion of sustainability beyond enterprise boundaries leveraging power and influence?</i>
	Situation in Regional Economy	<ul style="list-style-type: none"> • Provides education on conservation and keeping a low ecological footprint. • <i>Any other regional economy offerings?</i>





Exemplary Case #5: Frutos del Guacabo



<https://www.frutosdelguacabo.com> | (787) 242-7423 | Manatí

An agricultural producer sourcing products to restaurants, hotels and supermarkets across the island while raising local food awareness and providing education on sustainable cultivation methods.

	<p>Product/Service</p>	<ul style="list-style-type: none"> • Fulfills a basic human need in producing and distributing agricultural produce • Offer other value-added products, such as yogurt, cheese, pickles and marmelades • Produce edible flowers, micro-sprouts and engage in breeding-handling of animals • Provide educational farm tours to demonstrate various cultivation methods, such as hydroponics, and ecological management free of pesticide and fertilizer-use • Offering not only its products but also its services to restaurants, hotels and supermarkets on the island. • <i>Higher pricing (than other market products) reflects freshness and quality of product</i> • <i>Product is accessible through markets or by delivery</i>
	<p>Environmental Performance</p>	<ul style="list-style-type: none"> • Farm without pesticides and fertilizers • Engage in and educate on various forms of cultivation, such as on land, in pots, and through hydroponics. • Farm houses three nurseries, two of which engage in rainwater cycling and one which operates with hydroponics • Works to reduce overall waste by engaging in composting and feeding goats with extra food scraps. • <i>No other significant indication of closed-loop Water, Material, Substances/Emissions systems</i> • <i>Currently no renewable energy</i> • <i>Environmentally friendly workforce lifestyle & volunteerism?</i>




	<p>Human/Social Performance</p>	<ul style="list-style-type: none"> ● Raise awareness on the importance of local food production and supporting local food producers ● Organizes volunteer groups ● The farm is open to the community for workshops ● Works closely with students in the form of internship, specifically UPR Mayaguez and UPR Carolina ● Agritourism certified with the PRTC ● Employs individuals with disabilities, specifically with autism ● Prior to Hurricane Maria, the farm provided food to community members ● <i>Partnership/employment opportunities with local universities/colleges?</i> ● Safe work environment and conducive to wellbeing through natural surroundings ● Employees work from around 30 (on-field) to 50 (in-office) hours weekly ● <i>Currently no health promotion program offering.</i> ● <i>Currently no sustainability performance monitoring, despite implementation of many sustainability practices.</i>
	<p>Economic Performance</p>	<ul style="list-style-type: none"> ● Sufficient revenue is generated to cover costs. ● Wages to employees range from \$250 (<i>nearing minimum wage figure</i>) to \$600 per week depending on work field and tasks. ● Highest to lowest wage ratio of 1:2.4 ● <i>Most excess profit is redistributed to the farm itself</i>
	<p>Ownership and Decisions</p>	<ul style="list-style-type: none"> ● They employ 12 permanent employees ● <i>There is a lot of fluid communication between employees, and between employees and management.</i> ● <i>Collective ownership/steering; workforce and marginalized community participation not explicitly mentioned.</i> ● <i>No limits to growth because of the 85% of imported food figure</i> ● <i>Sustainability planning as of now, except to invest next in renewable energy.</i>
	<p>Situation in Regional Economy</p>	<ul style="list-style-type: none"> ● Engage in and educate on various forms of cultivation, such as on land, in pots, and through hydroponics ● Raise awareness on the importance of local food production and supporting local food producers ● <i>Any other regional economy offerings?</i>




Exemplary Case #6: Queso Vaca Negra



www.quesovacanegra.com | (787) 262-5656 | Hatillo

First cheese and yogurt producer of its kind sourcing locally and established through a barter economy system for indebted ranchers to the original milk processing company.

	<p>Product/Service</p>	<ul style="list-style-type: none"> ● Produce high quality cheese and yogurt, and in doing so fulfill a basic human need of nourishment. ● Offer engaging tours demonstrating the cheese-creating process. ● <i>Fair pricing? Fair accessibility?</i>
	<p>Environmental Performance</p>	<ul style="list-style-type: none"> ● Created a product previously unavailable locally ● The cattle and milk production industry is the only industry that is supplied 100% locally in Puerto Rico ● All of the milk used for the cheese production is sourced in nearby farms ● <i>Closed-loop Water, Material, Substances/Emissions systems?</i> ● <i>Renewable energy?</i> ● <i>Environmentally friendly workforce lifestyle & volunteerism?</i>
	<p>Human/Social Performance</p>	<ul style="list-style-type: none"> ● The company began with the forgiving of rancher debts, and an exchange of payments for milk. ● <i>Meaningful employment & work activities?</i> ● <i>Employment of individuals with disabilities?</i> ● <i>Partnership/employment opportunities with local universities/colleges?</i> ● <i>Healthy (safe and happy) work environment ?Healthy work-life balance?</i> ● <i>Health promotion program offering and participation?</i> ● <i>Sustainability performance monitoring and improvement?</i> ● <i>Volunteerism for humanitarian/social causes?</i>




		<ul style="list-style-type: none"> • <i>Capacity building program offering and involvement?</i>
	Economic Performance	<ul style="list-style-type: none"> • <i>Sufficient revenue generated to cover costs?</i> • <i>Fair/just wages to employees?</i> • <i>Fair/just highest to lowest wage ratio?</i>
	Ownership and Decisions	<ul style="list-style-type: none"> • <i>Observation, listening, reflection and learning informing management and steering practices?</i> • <i>Collective ownership/steering; workforce and marginalized community participation?</i> • <i>Qualitative growth strategy with limits to growth?</i> • <i>Enterprise size and structure complexity align with human capacity?</i> • <i>Sustainability planning?</i> • <i>Promotion of sustainability beyond enterprise boundaries leveraging power and influence?</i>
	Situation in Regional Economy	<ul style="list-style-type: none"> • Created a product previously unavailable locally, in the only industry that is supplied 100% locally in Puerto Rico. • <i>Any other regional economy offerings?</i>




Exemplary Case #7: Plenitud PR



<https://www.plenitudpr.org> | (787) 247-1966 | Las Marias

Non-profit educational farm and community dedicated to service and sustainability, engaging in multiple community-serving programs for the marginalized community of Las Marias such as rainwater harvesting, bio-construction, and community gardens. Engage with multiple cross-sectoral project partners for high quality project delivery.

	<p>Product/Service</p>	<ul style="list-style-type: none"> • Teaching and sharing sustainable technologies (permaculture theory, rainwater harvesting, bio-construction, eco-agriculture, etc) • Sell fresh produce and meats
	<p>Environmental Performance</p>	<ul style="list-style-type: none"> • Engage in rainwater harvesting, bio-construction, organic farming • Engage in agroecology and permaculture practices • Learn and implement traditional farming practices from elders • Use solar energy • <i>Closed-loop Material & Substances/Emissions systems?</i>
	<p>Human/Social Performance</p>	<ul style="list-style-type: none"> • Host university groups from several universities in the US for academic and service-learning trips • Collaborate with UPR-mayaguez to provide students with internships, summer practices, and coop programs at the teaching center • Provide space for employees to develop arts and skills that complement their mission of health and wholeness (yoga, holistic medicine, dance and music, vegetarian cooking, etc.) • Every day on the farm the staff puts all work aside and eats lunch together • Work with students and teachers from schools locally and in surrounding municipalities, providing workshops




		<p>and trainings on organic farming, healthy food preparation, and holistic education, and help to design and maintain school gardens</p> <ul style="list-style-type: none"> ● Serve a community wherein 57% of the population live below poverty levels by: <ul style="list-style-type: none"> ○ Installing rainwater harvesting systems for over 1453 people and engaging in regular testing and monitoring of local water sources ○ Engaging in the construction of 4 SuperAdobe emergency shelters post disaster ○ Training the new generation of farmers and installing over 24 community gardens throughout the region ○ In response to COVID-19, sewed hundreds of masks and since the start of the program distributed over 2760 plates of hot and nutritious food to community elders ● <i>Employment of individuals with disabilities?</i> ● <i>Sustainability performance monitoring and improvement?</i>
	Economic Performance	<ul style="list-style-type: none"> ● Major funding sources: grants and volunteers ● Annual budget 150-250k per year ● Offer CSA and sell fresh produce and meats ● <i>Economic viability?</i> ● <i>Fair/just wages to employees? Fair/just highest to lowest wage ratio?</i>
	Ownership and Decisions	<ul style="list-style-type: none"> ● Co-owned and founded by two members, with 17 staff members and a 6-member board of directors ● <i>Observation, listening, reflection and learning informing management and steering practices?</i> ● <i>Collective ownership/steering; workforce and marginalized community participation?</i> ● <i>Qualitative growth strategy with limits to growth?</i>
	Situation in Regional Economy	<ul style="list-style-type: none"> ● In partnership with multiple cross-sectoral community players to work towards increasing resilience and sustainability in communities ● Collaborate with and highlight the work of other farmers

Exemplary Case #8: HidrOrgánica



www.hidrorganica.com | (787) 598-0240 | Rio Grande

Agroecological farm producing vegetables, fruits, sprouts, spices, and medicinal plants. Connected with a butterfly cafe focusing on monarch butterfly conservation and education. Provides farm tours and education on pesticide and chemical-free growing and natural cultivation through hydroponic systems. Features an online video series/talk show to promote farmers and educate on agriculture in Puerto Rico.

	<p>Product/Service</p>	<ul style="list-style-type: none"> ● Production and sale of agro-ecological products, including vegetables, specialty crops, lettuce varieties, fruits, sprouts, spices and medicinal plants ● Also house a tobacco factory and butterfly cafe ● Provide farm tours ● <i>Fair pricing and accessibility?</i>
	<p>Environmental Performance</p>	<ul style="list-style-type: none"> ● The Butterfly Cafe focuses on the conservation of and education on the monarch butterfly ● 100% free of pesticides and chemicals ● Promote natural cultivation through land banks and hydroponic systems ● <i>Renewable energy?</i> ● <i>Closed-loop Water, Material, Substances/Emissions systems?</i> ● <i>Environmentally friendly workforce lifestyle & volunteerism?</i>
	<p>Human/Social Performance</p>	<ul style="list-style-type: none"> ● Host of the show series: <i>Let's talk about Agriculture</i>, a platform to promote and learn about agriculture in Puerto Rico, with the goal of raising agricultural awareness in the country and motivating people to grow their own food ● <i>Meaningful employment & work activities?</i> ● <i>Employment of individuals with disabilities?</i>




		<ul style="list-style-type: none"> • <i>Partnership/employment opportunities with local universities/colleges?</i> • <i>Healthy (safe and happy) work environment? Healthy work-life balance?</i> • <i>Health promotion program offering and participation?</i> • <i>Sustainability performance monitoring and improvement?</i> • <i>Volunteerism for humanitarian/social causes?</i> • <i>Capacity building program offering and involvement?</i>
	Economic Performance	<ul style="list-style-type: none"> • <i>Sufficient revenue generated to cover costs?</i> • <i>Fair/just wages to employees? Fair/just highest to lowest wage ratio?</i> • <i>Redistribution of excess profit to employees/community/non-profit organizations?</i>
	Ownership and Decisions	<ul style="list-style-type: none"> • <i>Observation, listening, reflection and learning informing management and steering practices?</i> • <i>Collective ownership/steering; workforce and marginalized community participation?</i> • <i>Qualitative growth strategy with limits to growth?</i> • <i>Promotion of sustainability beyond enterprise boundaries leveraging power and influence?</i>
	Situation in Regional Economy	<ul style="list-style-type: none"> • <i>Any additional regional economy offerings?</i>




Exemplary Case #9: Siempreverde



<https://www.facebook.com/lachocolateracayeypr> | (787) 603-7986 | Cayey

Non-profit organization providing education on sustainable farming methods such as rainwater management, solar energy use, permaculture, food and economic sustainability primarily to children with special needs.

	Product/Service	<ul style="list-style-type: none"> • Non-profit organization which focuses on offering agroecology workshops to children with special needs • Offer hour-long farm tours and chocolate tasting in the chocolaterie
	Environmental Performance	<ul style="list-style-type: none"> • Educational farm demonstrating how to self-sustain using resources of rainwater management, solar panels, food sustainability and economic sustainability • Offer hour-long farm tours, demonstrating agroecology and permaculture, from seed to harvest • <i>Environmentally friendly workforce lifestyle & volunteerism?</i>
	Human/Social Performance	<ul style="list-style-type: none"> • <i>Meaningful employment & work activities?</i> • <i>Employment of individuals with disabilities?</i> • <i>Partnership/employment opportunities with local universities/colleges?</i> • <i>Healthy (safe and happy) work environment? Healthy work-life balance?</i> • <i>Health promotion program offering and participation?</i> • <i>Sustainability performance monitoring and improvement?</i> • <i>Volunteerism for humanitarian/social causes?</i> • <i>Capacity building program offering and involvement?</i>

	<p>Economic Performance</p>	<ul style="list-style-type: none"> ● <i>Sufficient revenue generated to cover costs?</i> ● <i>Fair/just wages to employees? Fair/just highest to lowest wage ratio?</i> ● <i>Redistribution of excess profit to employees/community/non-profit organizations?</i>
	<p>Ownership and Decisions</p>	<ul style="list-style-type: none"> ● <i>Observation, listening, reflection and learning informing management and steering practices?</i> ● <i>Collective ownership/steering; workforce and marginalized community participation?</i> ● <i>Qualitative growth strategy with limits to growth?</i> ● <i>Promotion of sustainability beyond enterprise boundaries leveraging power and influence?</i>
	<p>Situation in Regional Economy</p>	<ul style="list-style-type: none"> ● <i>Any additional regional economy offerings?</i>




Exemplary Case #10: Agroempresarias de Puerto Rico



<http://www.agroempresariaspr.com/> | (787) 375-3268

Agro Empresarias de Puerto Rico, a non-profit dedicated to training women farmers and agro-entrepreneurs for economic independence and increased agricultural production, while integrating them into the food economy and providing them with empowering connections.

	<p>Product/Service</p>	<ul style="list-style-type: none"> ● Education through seminars, talks and trainings ● Agrotours - visits to farms and production plants ● Professional, legal and financial consulting ● Participation in agricultural market-places under the organization ● Marketing and sales orientations
	<p>Environmental Performance</p>	<ul style="list-style-type: none"> ● <i>Closed-loop Water, Material, Substances/Emissions systems?</i> ● <i>Renewable energy?</i> ● <i>Local sourcing?</i> ● <i>Positive contribution to local environment?</i> ● <i>Environmentally friendly workforce lifestyle & volunteerism?</i>
	<p>Human/Social Performance</p>	<ul style="list-style-type: none"> ● <i>Meaningful employment & work activities?</i> ● <i>Employment of individuals with disabilities?</i> ● <i>Partnership/employment opportunities with local universities/colleges?</i> ● <i>Healthy (safe and happy) work environment? Healthy work-life balance?</i> ● <i>Health promotion program offering and participation?</i> ● <i>Sustainability performance monitoring and improvement?</i> ● <i>Volunteerism for humanitarian/social causes?</i> ● <i>Capacity building program offering and involvement?</i>

	<p>Economic Performance</p>	<ul style="list-style-type: none"> ● <i>Sufficient revenue generated to cover costs?</i> ● <i>Fair/just wages to employees? Fair/just highest to lowest wage ratio?</i> ● <i>Redistribution of excess profit to employees/community/non-profit organizations?</i>
	<p>Ownership and Decisions</p>	<ul style="list-style-type: none"> ● <i>Observation, listening, reflection and learning informing management and steering practices?</i> ● <i>Collective ownership/steering; workforce and marginalized community participation?</i> ● <i>Qualitative growth strategy with limits to growth?</i> ● <i>Promotion of sustainability beyond enterprise boundaries leveraging power and influence?</i>
	<p>Situation in Regional Economy</p>	<ul style="list-style-type: none"> ● <i>Any additional regional economy offerings?</i>

[working section: reflective section on exemplary profiles presented above.]

Part II: Pathways to Success of Regional Sustainable Farms/Enterprises

Reconstructed Transition Pathways [*working section*]

The exemplary farms that I have studied in depth, profiled using the Criteria for Farm Sustainability, and analyzed through pathway transition reconstruction are Amasar, Instituto de Permacultura de Puerto Rico, and Plenitud PR. The first two exemplary farms/enterprises were selected by virtue of being on the SARE project team, and the third was selected by virtue of being the most exemplary of the Exemplary Cases profiled above.

I present the analysis of these exemplary enterprises through reconstructed transition pathway maps below, from which farm and enterprise data has been collected through a combination of background research and in-depth interviews. The Forrest & Wiek (2014) framework for pathway transition reconstruction is a highly valuable tool with which to be able to determine the success factors of enterprises with the support of evidence, so as to compile and create a basis for the transferring of these evidence-based critical success factors to other enterprises.

Finca Amasar Transition Pathway

[Describe reconstructed pathway steps for Finca Amasar and discuss results.]

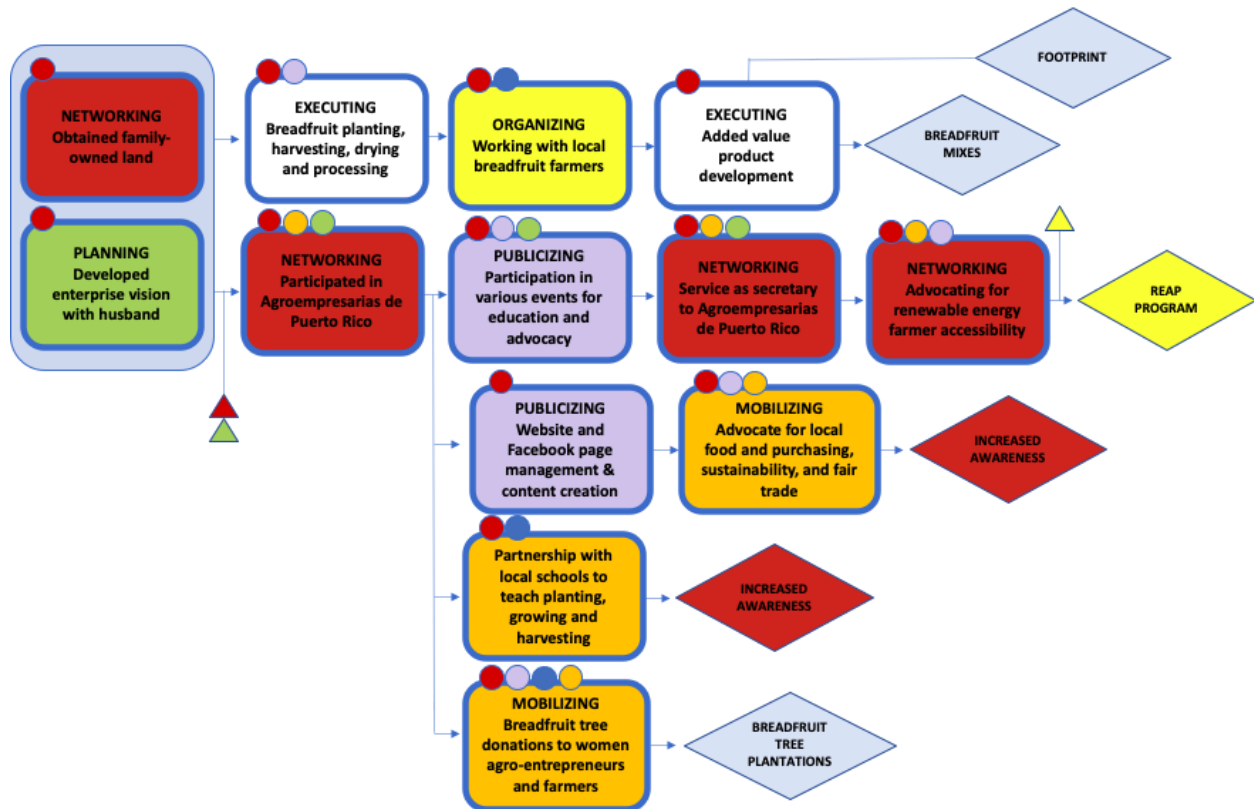


Figure 1. Reconstructed Transition Pathway of Amasar

Criteria for Successful Transition/Development of an Enterprise

Now that critical factors of enterprise sustainability transitions have been reconstructed, it is necessary to specify a method with which to appraise the overall sustainability of these interventions at hand, with the aid of key indicators and targets. The Sustainability Appraisal of Interventions (see Table 2), a tool presented in Forrest & Wiek (2014) for this very purpose, has been adapted to the case of our exemplary enterprises at hand. Major findings from this appraisal include...*[working section]*

Sustainability Appraisal of Interventions				
Activity Domain	Sustainability Criteria	Indicators	Targets	Enterprise Appraisal
Working	Wellbeing	Employment	Everyone being employed who wants to be, in full-time jobs; providing a living wage	(Yes, No, Somewhat, with 1-sentence explanations)
	Wellbeing	Local value added	Increase in the number and diversity of locally-owned enterprises	
Eating	Environment	Biodiversity	Levels adequate to local, native ecosystems	
	Equity	Accessibility	All day-to-day needs satisfied within the community and other essential needs satisfied locally or regionally	
Eating/ Shopping	Resources	Consumerism	Reduce overall consumption; Consumption of 100% ethically and environmentally produced products	
Educating	Citizenship	Civic Engagement	Open and transparent governance; high awareness of, passive and active participation in community affairs	

Table 2. Sustainability Appraisal of Interventions (tool obtained from Forrest & Wiek, 2014)

Part III: Education & Training Program [*working section*]

Constituents of a Training Program

[Define Theory of Change]

Because the issues of food insecurity, food access, and low livelihood opportunity form a part of a web of complex issues stemming from historic and political inequities and mismanagement in Puerto Rico, the solution to these issues must be similarly multi-faceted and systemic. In fact, the long-term goal of attaining food sovereignty through the building of a strong regional economy as defined by Wiek (2020) involves a wide range of factors, including a significant level of local food consumption and production, a significant level of healthy food production, the presence of sustainable food businesses in all food economy sectors, a majority of local food businesses engaging in sustainable practices, the provision of relevant support functions for sustainable food businesses by local support organizations, the presence of justice (in terms of wages, access, etc) all throughout the food system, and the recognition and support of local food businesses by consumers (see Table 1). While the insights garnered from an analysis of successful sustainable farms and enterprises are far addressing each facet of regional economy building, they provide a starting point with which individual enterprises can positively contribute to its attainment.

When it comes to the most successful models of farmer learning, research shows that farmers tend to value social learning (or peer-to-peer learning) the most as compared with individual or institutional learning, and that social learning allows for greater participation by women and other marginalized groups of the population as well (Laforge & McLachlan, 2018). In fact, in contrast with its counterparts, this type of learning presents an opportunity for a good balance between placing due value on local, traditional, or experiential knowledge, while allowing for collaboration with researchers in participatory research programs (as exemplified within the University of California agroecological program) that place farmers needs and production issues at the forefront (Laforge & McLachlan, 2018). Social learning also plays a very powerful role when it comes to the fabric that ties together players of the sustainable regional economy in that it has the potential to “demonstrate that new farmers who...are engaging in a variety of agroecological and alternative practices are not as isolated as they appear or often feel, but rather are part of a larger food movement working to resist and transform the agro-food system” (Laforge & McLachlan, 2018).

Training Program: Farmer Learning Community

[Insert learning objectives]

The Agroturismo Agricultor Comunidad de Aprendizaje (A³) or the Agritourism Farmer Learning Community is a 12-week participatory program that takes place in the summer months of May - July aimed at providing peer-based (1) education, (2) consultation and (3) participation in the

local food economy of Utuado, and leaving aspiring or experienced farmers with a strong network of farming peers and regional economy supporters. The program is directed at a 15-member cohort comprised of at least 80% of women, people of color, individuals with disabilities, individuals with varying gender and sexual identities, and other marginalized populations. The program simultaneously allows for collaborations with researchers in the University of Puerto Rico in order to address farmer needs in research and design projects addressing salient production issues. Once a week, participating farmers visit a different farm site where they receive a farm tour and learn specific content, including the following range of topics:

Week 1: Orientation and rapport building; Visioning for the future of one's farm/enterprise or for the future of community agritourism in Utuado; Indigenous knowledge/practice
Rooting with *[program leader]* from *[SARE Project]*

Engage in a collaborative visioning activity.

What was the food system here and what can we learn from that? How can we build on it?

Week 2: Permaculture, organic farming, and agroecology best practices
with Evelyn Ortiz Avilés and Max Pérez Padró from Instituto de Permacultura de Puerto Rico

Visit the permaculture institute farms and engage with various farming practices while receiving a tour and viewing live demonstrations.

Week 3: Product development, marketing, and social advocacy & stewardship
with Marisol Villalobos and Jesus Martes from Finca Amasar
<Explanation of content>

Week 4: On-farm activities, developing value-added products, and agritourism
with X from X
<Explanation of content>

Week 5: Business Planning & Disaster Preparedness
with X from X
<Explanation of content>

Week 6: Budgeting & Financing
with X from X
<Explanation of content>

Week 7: Sustainable Operations (Environmental)
with X from Plenitud PR
<Explanation of content>

Week 8: Sustainable Operations (Human/Social)
with X from Plenitud PR
<Explanation of content>

Week 9: Sustainable Sourcing
with X from X
<Explanation of content>

Week 10: X with X from X
<Explanation of content>

Week 11: X with X from X
<Explanation of content>
Week 12: X with X from X
<Explanation of content>

[Insert section: what is needed to implement the training program? Who is needed to implement the training program?]

Training Program First Iteration Report & Reframing [*working section*]

[In the case that I have enough time to work with Dr. Biblioni to test out this program, here will be a report on how that process went and what can be improved for future farmers based on his feedback.]

Discussion

Based on all of the data collected thus far on sustainable agritourism enterprises as pathways to increased resilience, livelihood opportunity, and food security, results of analyzed enterprises and their interactions with local communities prove to reveal some gaps when analyzed through a sustainability lens, but are very promising when viewed in conjunction with one another as demonstrated in a wide array of key exemplary practices. While most of the analyzed enterprises are located outside of Utuado, their contextual similarities allow for the promising transfer of solutions to the region. However, in the development of a training program, it is still very important to maintain a regional economy framing, as capacity building by itself is not sufficient to ensure increased sustainability entrepreneurship and societal change.

At each point of my project thus far, I've had the chance to collaborate with different project partners and stakeholders, which provided me with a range of feedback on key points and items for potential development:

In **Part I** of the project, I have been working in close collaboration with our project partner from PRTC, Nilda Luhring Gonzalez, to identify, contact, and collect information from exemplary farms and enterprises throughout Puerto Rico. Ms. Gonzalez reviewed the Criteria for Farm Sustainability in doing so, and revealed that the list of criteria could be a powerful tool with which to gain a more holistic understanding of important information on enterprises that has not been previously considered. An example of this is whether or not an enterprise employs individuals with disabilities. This kind of information can help create connections and add support for sustainable enterprises as by professionals like Ms. Gonzalez in their networking roles.

In **Part II** of the project involving the reconstruction of transition pathways, Dr. Katja Brundiers provided valuable feedback on the utility of this tool for increasing the understanding of regional economy players, their interconnections, and functions among communities and farmers.

Part III of the project involving the training program is incomplete, but scheduled to be reviewed by Dr. Lisa Chase, professor at the University of Vermont and director of the Vermont Tourism Research Center. This will set the stage for valuable feedback on the utility of the training program in the context of agritourism.

Because of certain currently unavailable required project components as well as areas worthy of expansion, I plan to continue to collaborate with my project partners on the SARE project for a time period of 2 months past my graduation term until full project completion. These opportunities for development include: (1) the operationalization and delivery of developed surveys and interviews upon receiving IRB approval (which had been initiated early in the semester but experienced heavy delays in part due to the impact of COVID-19 on the UPR IRB team); (2) the expanding of the pool of exemplary enterprises for which to reconstruct transition pathways; and (3) the piloting of the developed training program upon completion to better inform the later program implementation phase.

Conclusion

The United States is a food superpower, the world's largest food exporter, and one of the world's four top food producing countries (Investopedia). Despite this, the people of the US territory Puerto Rico are dependent on receiving 85 percent of imported food (NBC), all while being at high risk of a variety of natural hazards in addition to multiple layers of vulnerability (Holladay et al., 2019). This progression of vulnerability places the Puerto Rican population at high risk for the incidence of disasters (Wisner, et. al, 2012; Garriga-López, 2019). It is in this context that the growing movement for the building of food sovereignty by Utuado communities arose, and specifically the movement towards agritourism (Holladay et al., 2019; Garriga-López, 2019). Food sovereignty is an empowering yet complex collective state to reach, and at it's heart is the building of a strong regional food economy as defined by Wiek (2020). Identifying sustainable and exemplary regional economy players in a wide array of roles along the food system, and creating accessible learning outputs rooted in their evidence-based practices allows for the strengthening of the regional food economy through increased awareness, understanding, resources, and tools among farmers and communities.

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In order to successfully complete this project, I have relied on the guidance and support of many mentors, subject matter experts, project partners, and stakeholders in the US and in Puerto Rico. I would like to thank my primary advisor and mentor, Dr. Katja Brundiars, who both initially introduced me to the SARE Project and later patiently guided me along the way. I would also like to thank Dr. Patrick Holladay and Dr. Pablo Mendez-Lazaro, who welcomed me onto the larger SARE Project team and supported me with guidance and resources throughout. I'd like to thank my fellow ASU students on the team, as well as the UPR student team who were all readily available to share ideas and collaborate, including Anais Roque, Kasey Cretors, and Laura Cabrera Rivera, among others. Finally, I would like to extend a heartfelt thank you to Nilda Luhning Gonzalez, a powerhouse of resources and networking and one of my biggest supporters and guides in Puerto Rico whom I have yet to meet in person.

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