The Community Food Systems Assessment is a compilation of primary and secondary data gathered throughout the year of 2019 to understand the needs and opportunities of the United States Virgin Islands (USVI). This report has been developed to understand the existing conditions of the food system (Production, Processing, Distribution and Marketing, Consumption and Resource Management) and the relationship and impacts within the community (Education, Equity, Economy, Environment, Wellness and Policy). The following pages will walk through analysis and proposals for future priorities in the USVI, as it relates to Food Systems resiliency. It will also detail existing conditions and can serve as a report that can be updated to show impacts in the coming years.

The United States Virgin Islands is made up of four islands: St. Croix (STX), St. Thomas (STT), and St. John (STJ) and Water Island. In 2017, the Community Food Systems program at Iowa State University began a relationship with Sommer-Sibilly Brown and Virgin Islands Good Food to support food systems development in the territory. Shortly thereafter, Hurricane Irma and Hurricane Maria hit the territory, leaving the people and their region devastated. In the summer of 2018, Iowa State University Extension and Outreach, Virgin Islands Good Food, and FEMA held farmer listening sessions and met with numerous businesses, farmers, and organizations to understand needs and the impact of the hurricanes. Due to the relationships made and the stories shared during the summer of 2018, additional efforts were encouraged for research of existing conditions and identification of food systems development opportunities. In the spring of 2019, Local Food Leader and Community Food Systems workshops were hosted by Good Food Coalition on St. Croix. In the summer of 2019, FEMA recovery funds were dedicated to the territory wide Community Food Systems Assessment. This assessment was conducted with support from many organizations, farmers, businesses, and individual knowledge and wisdom about the place-based needs for the territory.

This assessment, along with additional assessments that have occurred throughout the VI territory since the hurricanes in 2017, show the need for leadership development, advocacy for food policy, and climate resilience. This includes local food promotion programs, technical assistance and support for agriculture, small business development and collaborative efforts between farmers, aggregators, processors, and general leaders connecting all components of the food system.
Food System Sectors

Production: Science, art, or occupation that involves cultivating land, raising crops, feeding, breeding, or raising livestock as well as hunting, fishing, or foraging (may include gardening/ specialty crop production/ urban farming)

Transformation + Processing: Transformation of raw ingredients, physically or chemically, transforming into a value-added market (may include value-added processing/ freezing and canning/ abattoir)

Distribution + Marketing: Moving product from farm or processing site to consumer; including distribution and sales (may include grocery stores/ food hubs/ food boxes / CSA)

Consumption + Access: Opportunities for an individual to gain access to food in a physically safe, financially viable, and culturally competent way (may include restaurants/ food pantries/ food trucks/ meal assistance programs)

Resource Management: Efficient and effective deployment and allocation of community and business resources as it relates to land, water, soil, plants, food and created materials (may include conservation programs/ food waste recovery/ reef management/ composting)

Community Assets:

Equity: offering same status and equal access to social goods, services, property, freedom of speech; including equal opportunity for access to a healthy and good quality of life

Education: promoting experiences and programming related to food systems and health for a deeper understanding and increased opportunities to build skills

Wellness: health status of a community, and individuals that live in it, as it relates to access to affordable and effective options for quality of life

Environment (built and natural): Surrounding conditions that include both natural environment and built space in which a person or animal lives

Policy: principles or actions that have been adopted by governments, businesses and individuals to guide decisions and achieve rational outcomes

Economy: wealth and resources of a community or region that relate to the development and consumption of goods and services
U.S. Virgin Islands Process

The Community Food Systems Assessment is a compilation of primary and secondary data (Geographic Information Systems, Census Database, Extension research, Needs Assessments, interviews, site visits, and focus group conversations). This report has been developed to identify and showcase existing conditions of the USVI territory within both community asset areas and food system sectors. Additionally, the report highlights potential projects for implementation, goals derived from the public, and individual tactic or project information.

The assessment is formatted to give an in-depth analysis of food system sectors and tactics that exist or are needed within the USVI. Each section begins with a sector overview and analysis and then dives into details of the specific tactics. Where appropriate, maps are developed to give a visual demonstration of the information discussed.

- 2 Disaster Recovery focus groups completed with farmers in partnership with FEMA- May 2018
- 70+ interviews and site visits conducted – May 2018-July 2019
- Leadership trainings offered
  - Local Food Leader workshop- January 2019
  - Community Food Systems workshop- January 2019
  - Local Food Leader- abbreviated- June 2019
  - Pencil It Out (2) - business finance- June 2019
- Support to Virgin Islands Good Food on coalition development
- 18 listening sessions offered in partnership with FEMA throughout the territory in October 2019 reaching a total of 597 people
- 1 assessment of the territory
- 1 Disaster Preparedness checklist for producers

Next Steps: to be created fall 2020

- 3 Snapshots - 1 per island
- Priority projects determined for collective development
- 1 Evaluation plan will be developed in 2020

US Virgin Islands assessment partners

Thank you to partners that supported in the outreach and research for the assessment:

FEMA Recovery Team
Virgin Islands Good Food Coalition
Territory Community Foundations (St. Croix, St. Thomas, St. John)
Virgin Islands Department of Agriculture

A special thanks to all the farmers, fishers, businesses, organizations, staff, and individuals that met and shared their stories with us throughout the last two years. Thank you for your work and dedication to resilient food systems. We are humbled and grateful for your time.
Based on the assessment, interviews, input sessions and focus groups, the following priority projects are suggested for the Virgin Islands Territory. Additionally, a snapshot for each island will be developed to identify a food systems plan, priorities and evaluation methods for understanding impact. The following sections provide research and analysis for each asset area of the community as well as sector of the community. Similarly, each tactic within the sectors is assessed and describes existing resources and opportunities.

**Suggested Priorities**

1. **Increasing local food production and harvesting including community awareness and support for a local USVI food system**

   There is an overwhelmingly high import rate within the U.S. Virgin Islands (USVI), despite the appropriate climate for year-round production. Various reports state import rates ranging from 95%-99% of food needs. While this may vary based on the product being imported, there are options to decrease this rate of import by supporting local farms that are producing or harvesting meat and seafood, specialty crops such as fruits, vegetables and nuts, or other types of commodities like sugar cane.

   Raising awareness and educating all generations about agriculture practices, technology, and developing a new generation of farmers and fishers within the territory may be beneficial to support local production efforts. This may include partnerships with Future Farmers of America (FFA) and 4H, as well as community and school gardens and mentorship for new and beginning farmers.

   This may include developing a general directory of resources available to farmers and fishers. Communication is integral to resilient systems and includes both internal organizational communication as well as community-based networks. Discussions of a directory on farmers, practices, markets that support local, as well as local food policies were identified as needs.

   There may be ways of encouraging increased networking between farmers for diversified crops and products sold at the market to increase sales and revenue, as well as consumer experience. St. John may also benefit from a local food marketplace and local food distribution opportunity. Unfortunately, St. John is currently struggling in its capacity to grow product on island as there is only one major farm, which is currently experiencing political conflict.

2. **Developing supportive infrastructure for agricultural products including land access, equipment and utilities; storage and warehousing; and safe and reliable transportation on road and waterways**

   Identifying key crops, livestock, etc. may be beneficial to consider appropriate infrastructure demands. Products may include root crops, gourds, bananas and mangos, herbs, lemongrass, moringa, noni, breadfruit, papaya, sugar cane, etc. While a few farmers are producing these crops, larger scale production may allow for value-added processing opportunities and the development of a more sustainable market. Future feasibility studies are needed to inform crop development.

   This may also include processing space or mobile processing units that could be transported on island or between islands to support processing of products. There are no specialty crop processing facilities in the territory. It has been expressed that processing is needed for a variety of crops for value-added opportunities. Mobile processing units are an opportunity for on-farm processing which would lessen the transportation of livestock to be slaughtered and processed. This could also be in the form of shared-use certified kitchen space or enterprise development center to promote education and business development throughout the territory.

   Improvements to enhanced waste management strategies, programs and infrastructure are needed. The territory operates bin systems that allow for individuals to dump waste at appropriate locations which are then collected and transferred to landfills. VIWMA has hauled waste to two landfills, one in St. Croix and one in St. Thomas, both of which have violated federal laws and regulations. While there are current investigations and research being conducted on waste management sites, it may be needed to further address appropriate waste management strategies. By 2021 these landfills will no longer exist making waste prevention and management a high priority. What little recycling that is done on-island in the USVI is shipped off island for processing and acquires additional transportation costs and custom fees upon re-entry. The territory, including each island, will need to develop additional systems and infrastructure to manage this influx of waste.
3. **Cooperative business strategies for aggregation and distribution of local food products throughout the territory**

Cooperatives and/or Food Hubs that support the collective aggregation from multiple farms and fishers for distribution to retailers, grocers and other food markets would be beneficial. Existing feasibility and research have been conducted in the past with USVI Extension and DOA, and there is a need for business development around this type of aggregation business. Additionally, opportunities may include expanding farmers markets—both existing and new—to stimulate local economies on each island. St. Croix and St. Thomas have existing local producers to increase and sustain sales at farmers markets.

The St. Croix Recovery Plan suggests the creation of Small Business Industry Clusters: set up business industry clusters with local businesses that wish to participate; determine key goals and schedules; promote business to business links; develop public-private partnerships; help gain access to additional markets; outline best practices of clusters; create a long-term plan for how the clusters will be managed, funded, and will grow and adapt to ever-changing needs of the business community. This could connect to restaurants as well as other retailers, processors and distributors. (Community Foundation of the U.S. Virgin Islands, 2018)

4. **Increase availability of local foods to residents**

Meal sites and food pantries are another way to increase food access in communities. Meal sites and pantries can be found on St. Croix and St. John. No pantries or meal sites could be identified on St. Thomas. Support may be needed for development of food banks or pantries and meal sites at churches and other public locations in the territory.

Currently, there is not support for programs like SNAP and WIC to be used at local food outlets such as farmer’s markets. Double Up Food Bucks could be utilized for programming or as a model for new programming if this is a viable opportunity.

5. **Increased collaboration throughout the community for systemic connections and innovation**

Additional areas of need in the production sector include the continuation of relationship development between farmers, fishers, Extension, Department of Agriculture and non-profits. With coordinated support, resources may be able to stretch further and have a bigger impact on community, rather than organizations offering similar services. Collaboration may also support in building trust that has been lost between farmers and fishers and organizations such as the DOA, USVI Extension and FEMA.

6. **Creating a vibrant and professional food and agriculture sector**

Developing a consistent process may promote more accountability and professionalism within the production arena. However, it is understood that this would be an undertaking and take time to develop, as many farmers are mistrusting and don’t see the need to share their business records.

Realizing that business skills, record keeping, and production best practices are needed, it is also critical to mention that many of these programs have been offered through DOA and USVI Extension. A potential strategy may include the development of train-the-trainers for farmers and fishers to learn the best practices, and then they would offer the training to their peers.
Additional Needs Territory Wide:
In addition to food systems priority project implementation, systems wide support changes are needed. Across all areas of community assets and sectors, there is a critical need for investment in data development, procurement, and mapping. By understanding existing conditions, we can better prepare and determine appropriate resilient strategies for rebuilding, as well as preparedness for the future.

Additionally, stronger cohesion and community capacity is needed. Throughout the scope of this project, it is evident that there is a gap in communication strategies and networks. There is also clear competition between organizations due to limited fund availability. These needs were recognized at all levels of the community from state government, community organizations and businesses. There are numerous efforts that are duplicated due to the lack of strategic partnerships and general connectedness. Future leadership and community capacity support is suggested to support community-driven leaders that lift all areas of the community for future generations.

Last, continued preparedness strategies are suggested. For the priority projects developed, and for existing businesses, organizations and other affiliations, it is strongly suggested to create place-based disaster preparedness plans. This includes not only immediate response to disaster, but also network development for support out of the territory. Examples may include:

- *Discussions on specific needs for immediate responders;*
- *Infrastructure development that allows for food storage, access, etc.;*
- *Communication with residents on ways to access and understand how farmers have prepared and what food is still available for purchase post-disaster.*

If any of the priority projects move forward, it is highly suggested to find a local lead to chair the project development, as well as a comprehensive team of local representatives as well as potential external technical assistance providers.
COMMUNITY ASSET AREAS

The community asset section will describe each asset area of the community as well as provide existing data, maps and relevant information as it pertains to food systems. Due to the intersectionality of food systems, many different aspects of the community impact food systems opportunities, and likewise, food systems components may impact areas of the community. These connections, overlaps, and potential impact are detailed in the sections below.

The hope is that this research can be used in future applications for funding, partnerships, and general understanding of the territory. This may also be used as a research directory in which it can be updated every few years with more current information.

U.S. Virgin Islands History + 2017 Hurricanes

The United States Virgin Islands Territory is a resilient and impressive region that has a strong culture and pride in their history. While the community continues to evolve based on disaster recovery work, tourism, and newcomers, there are unique landmarks, societal norms, and cultural identity that is ever present throughout the territory. These characteristics promote the territory as a tourist destination and home to many individuals.

The U.S. Virgin Islands history includes settlement of tribes including the Ciboney, Arawak and Carib. Tribes practiced fishing and farming and had successful community settlements throughout all islands. Common crops included maize, tobacco, cotton and guava. (FEMA, 2018)

The Virgin Islands went through various eras of control, starting in 1672 with the Royal Danish West Indian Company controlling St. Thomas and implementing plantations across the island which eventually spread to St. John. St. Croix was purchased by the Company in 1712 and then was purchased by France in 1733. During these decades, agricultural products such as sugar, cotton, tobacco, etc. were exported. In 1754, a free trading policy was established by Denmark and allowed for trade and commercial sales to occur on St. Thomas. Throughout the period slaves worked on the plantation and conditions slowed in the early 1800s, with a slave revolt in 1848, which soon resulted in the abolition of slavery. (FEMA, 2018)

For several decades there were conversations about purchasing the islands between Denmark and the United States, and U.S. control finally occurred in 1917, right before entering World War I. Over the next several years, there were efforts to increase agricultural production and commodities again, but most were unsuccessful. Efforts included sugar production and additional smallholder homesteads. After the Prohibition in 1933, rum was able to establish and grow as an employment opportunity through manufacturing. Similarly, additional manufacturing jobs emerged following World War II which included assembly plants, refineries and bauxite processing. Many manufacturing plants went through times of expansion, and several closed during the early 2000’s (Austin, 2018).

Tourism has been a significant economic development engine. In years prior to the hurricanes of 2017, 1.2 million cruise passengers and 400,000 airplane passengers were visiting the territory annually (Austin, 2018; FEMA, 2018). In 2017 the territory was hit by 2 category 5 hurricanes within 2 weeks of each other. Devastation form these storms were felt on all islands within the territory. In addition to the immediate impact of the storms, there were continuous rains and floods that continued to impact the territory as well as power outages, severe infrastructure damages, and general collapse of communication and connectivity.

The territory had over 22,500 damaged homes, accounting for over 52% of the housing. Of the total, over 5,000 homes had severe destruction. Infrastructure damages included 90% of aerial powerlines including appx. 13,500 total poles. Power was not fully restored until February 2018, leaving numerous homes, businesses and organizations without power for cleaning, food storage, and general safety. Damage to infrastructure within the community also included but was not limited to wastewater pump damage and spillover into surface waterways, extreme road damage and repairs, sinking vessels within the coastal waters, and telecommunication service transmission issues. (FEMA, 2018)

Of the properties effected, all schools reported receiving some damage, with at least 30 schools in need to permanent renovation. Critical care units had to evacuate 784 of their patients to the mainland and experienced major destruction to their medical facilities. Government properties were also impacted, with a total of 800 properties experiencing damage. (FEMA, 2018)
Overall, losses of over $1.5 billion dollars economically occurred in the US Virgin Islands territory through loss of wages ($398 million), lost government revenues ($576 million) and commercial property damage ($561 million) (FEMA, 2018). While the recovery for the territory includes many aspects for the community, this assessment seeks to identify needed priority projects related to the development of resilient food systems. Throughout the process of the food systems assessment, research included both responses and identified needs in wake of the hurricanes and considered opportunities for the future to develop a thriving community economy with food.

Throughout this assessment, resilience will be addressed in many ways. It will include identification of resources and planning for future preparation before storm; it will include considerations and proposals for business and program development for self-sufficiency and economic growth with food; it will include systems shifts and options to consider through policies, government and protocols.

Immediate lessons learned based on responses from farmers are shared below.

1. **Improve pre-storm prep through securing of vehicles, storage facilities (on-farm), etc.:**
2. **Understand and assess commodities across the territory and create a plan for resupply after a storm**
   Create a community disaster plan for re-securing and identifying existing food supply available; ex. Identify existing food supply pre-storm that farmers/ grocers/ etc. have on hand. Create a plan for aggregation and safe distribution of food post disaster so food does not go to waste without electricity; create bunkers and food safe storage options to secure food.
3. **Develop new response protocols for businesses and farmers that live off-site**
   Work with policy makers and FEMA responders to create safe passage opportunities for producers to get to their livestock and crops for both repairs and safety considerations. Many farmers experienced loss weeks and months after the storms due to lack of access to their business operations. While livestock may have still been living, fencing and other safety mechanisms were down, allowing for predators to kill their livestock. Other examples included looting of farm produce.
4. **Establish pre-disaster and post-disaster contracts**
   Consider networks both internal and external to disaster zone and address needs and innovative ways to respond. Partnering with organizations and support systems out of the disaster zone, may help with receiving support from non-impacted areas.
5. **Understand the cost of goods for farmers**
   A continuous issue felt by farmers was the lack of support for cost of goods/ products lost from the storms. Individuals were receiving $2 - $8 per fruit tree lost in the storm, while many of these were orchards that had developed over years and were producing substantially larger bounties. While farming is a high-risk business, there are necessary procedures to ensure that food suppliers and producers can get back on their feet. Similarly, in order to assist in identifying losses, farmers and food businesses should adapt best practices for record keeping and business planning. These efforts would assist not only in the wake of disaster, but also in general business development planning and future programming efforts. Record keeping will also assist in financial business strategies and ability to leverage funds through grants and loans.
Community Asset Overview:
The territory of the Virgin Islands has a population of 100,768 as of the 2015 Virgin Islands Community Survey. This population does not consider individuals or families that may have moved to the mainland after the hurricanes, or the disaster recovery workers that have moved onto island.

Approximately half of the population in the Virgin Islands have lived in the territory since birth, and the other half has moved to the territory for employment of self, spouse, or dependent. Additional movement to the territory has included visitors that have stayed as well as medical and college reasons.

Table 1: Population Data - TERRITORY (EASTERN CARIBBEAN CENTER AND UNIVERSITY OF THE VIRGIN ISLANDS, 2015; ISSUED 2018)
Equity

History + Culture
The U.S. Virgin Islands (USVI) was originally settled by the Ciboney, Arawak and Carib tribes migrating from the Amazon River Valley. Original crops included maize, tobacco, cotton and guava. In 1493, Columbus’ second voyage led to the USVI and to colonial control. The next 200 years gave way to many European rulers of the USVI: Spanish, British, Dutch, and French until mid-18th century when all islands were under Danish rule (FEMA, 2018). Before and during Danish rule, much of the native population had been wiped out of the territory due to enslavement, violence and disease. Slave trading outposts were initiated throughout the territory and many large plantations brought in African slaves for mass crop development of sugarcane, coffee, tobacco and cotton. In 1848, slavery was abolished, occurring with a series of revolts. Eventually the territory was purchased by the United States in 1917. In 1927, all residents were officially designated citizens of the United States. The 1930s marked the end of prohibition and an increase in rum demand allowed for the increase of local plantations and rum distilling (FEMA, 2018).

There is a distinct blend of history, culture and natural amenities in the territory. Cultural diversity can be seen through the arts, food, religion, festivals and music. There are approximately 25 holidays celebrated in U.S. Virgin Islands that relay back to the ancestral roots and history of the territory (FEMA, 2018).

Income and Poverty:

2010 Median Family Income by Estate

U.S. Census Bureau; Decennial Census 2010, TIGER/Line Shapefile, 2017, state, United States Virgin Islands, Current Estate State-based Shapefile.
### Table 2: Income for Households: USVI Territory (Eastern Caribbean Center and University of the Virgin Islands, 2015; Issued 2018)

<table>
<thead>
<tr>
<th>Income</th>
<th>Total</th>
<th>Black</th>
<th>White</th>
<th>Other Races</th>
</tr>
</thead>
<tbody>
<tr>
<td>Households with Income</td>
<td>44,881</td>
<td>35,163</td>
<td>6,009</td>
<td>3,709</td>
</tr>
<tr>
<td>Less than $5,000</td>
<td>1,102</td>
<td>799</td>
<td>16</td>
<td>288</td>
</tr>
<tr>
<td>$5,000-$9,999</td>
<td>2,711</td>
<td>2,181</td>
<td>275</td>
<td>256</td>
</tr>
<tr>
<td>$10,000-$14,999</td>
<td>3,617</td>
<td>3,017</td>
<td>179</td>
<td>422</td>
</tr>
<tr>
<td>$15,000-$24,999</td>
<td>8,452</td>
<td>6,555</td>
<td>917</td>
<td>981</td>
</tr>
<tr>
<td>$25,000-$34,999</td>
<td>6,474</td>
<td>5,224</td>
<td>877</td>
<td>373</td>
</tr>
<tr>
<td>$35,000-$49,999</td>
<td>7,444</td>
<td>5,945</td>
<td>1,054</td>
<td>445</td>
</tr>
<tr>
<td>$50,000-$74,999</td>
<td>7,707</td>
<td>6,040</td>
<td>1,249</td>
<td>418</td>
</tr>
<tr>
<td>$75,000-$99,999</td>
<td>3,761</td>
<td>2,980</td>
<td>629</td>
<td>152</td>
</tr>
<tr>
<td>$100,000 or more</td>
<td>3,611</td>
<td>2,422</td>
<td>814</td>
<td>375</td>
</tr>
</tbody>
</table>

Median (dollars) | 33,964 | 33,677 | 43,073 | 24,309 |
Mean (dollars) | 45,256 | 43,238 | 60,559 | 39,591 |

### Table 3: Income for Households: USVI Territory (Eastern Caribbean Center and University of the Virgin Islands, 2015; Issued 2018)

<table>
<thead>
<tr>
<th>Income</th>
<th>Total</th>
<th>Black</th>
<th>White</th>
<th>Other Races</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males, 16 years and over with income</td>
<td>27,763</td>
<td>21,104</td>
<td>4,241</td>
<td>2,418</td>
</tr>
<tr>
<td>Median (dollars)</td>
<td>28,272</td>
<td>26,512</td>
<td>38,049</td>
<td>23,066</td>
</tr>
<tr>
<td>Mean (dollars)</td>
<td>34,509</td>
<td>31,611</td>
<td>49,873</td>
<td>32,853</td>
</tr>
<tr>
<td>Females, 16 years and over with income</td>
<td>36,441</td>
<td>29,393</td>
<td>4,226</td>
<td>2,821</td>
</tr>
<tr>
<td>Median (dollars)</td>
<td>23,874</td>
<td>23,566</td>
<td>29,189</td>
<td>18,991</td>
</tr>
<tr>
<td>Mean (dollars)</td>
<td>29,308</td>
<td>28,734</td>
<td>37,113</td>
<td>23,595</td>
</tr>
</tbody>
</table>

### Table 4: Poverty Status: USVI Territory (Eastern Caribbean Center and University of the Virgin Islands, 2015; Issued 2018)

<table>
<thead>
<tr>
<th>Poverty Status</th>
<th>Total</th>
<th>Black</th>
<th>White</th>
<th>Other Races</th>
</tr>
</thead>
<tbody>
<tr>
<td>Families</td>
<td>25,964</td>
<td>20,865</td>
<td>2,868</td>
<td>2,230</td>
</tr>
<tr>
<td>Householder worked last year</td>
<td>17,920</td>
<td>14,347</td>
<td>1,984</td>
<td>1,589</td>
</tr>
<tr>
<td>With related children 6-17</td>
<td>8,602</td>
<td>7,360</td>
<td>484</td>
<td>758</td>
</tr>
<tr>
<td>With related children under 6</td>
<td>4,479</td>
<td>3,942</td>
<td>224</td>
<td>313</td>
</tr>
</tbody>
</table>

### Table 4: Poverty Status: USVI Territory (Eastern Caribbean Center and University of the Virgin Islands, 2015; Issued 2018)

<table>
<thead>
<tr>
<th>Income Below Poverty Level</th>
<th>Total</th>
<th>Black</th>
<th>White</th>
<th>Other Races</th>
</tr>
</thead>
<tbody>
<tr>
<td>Families</td>
<td>5,197</td>
<td>4,350</td>
<td>492</td>
<td>355</td>
</tr>
<tr>
<td>Percent below poverty</td>
<td>20%</td>
<td>20.8%</td>
<td>17.2%</td>
<td>15.9%</td>
</tr>
</tbody>
</table>

From the community survey assessment, there are 51,947 household families in the Virgin Island Territory. Approximately 20% of these families struggle with poverty. Based on the 2019 poverty guidelines, the income amount per household is stated below. (Department of Health and Human Services, 2019).

Additionally, based on this poverty guideline, households can apply for assistance through the Supplemental Nutrition Assistance Program to receive monthly allotments to support their food purchases. (Virgin Islands Department of Human Services, n.d.)

### SNAP Participation

From the SNAP State Activity Report, there was an average monthly snap participation of 27,760. The number of households that participated included 13,068 households; with a total issuance of $56,766,573. (Food and Nutritional Service, 2018)

SNAP participation comparison between United States and the Virgin Islands. There is a significant monthly SNAP benefit increase for the Virgin Islands, including 8 percent different between families with children and income under 51% poverty.
Table 5: 2019 Poverty Guidelines

<table>
<thead>
<tr>
<th>Person’s in family/household</th>
<th>Poverty Guideline</th>
</tr>
</thead>
<tbody>
<tr>
<td>One Person</td>
<td>12,490</td>
</tr>
<tr>
<td>Two people</td>
<td>16,910</td>
</tr>
<tr>
<td>Three people</td>
<td>21,330</td>
</tr>
<tr>
<td>Four people</td>
<td>25,750</td>
</tr>
<tr>
<td>Five people</td>
<td>30,170</td>
</tr>
<tr>
<td>Six people</td>
<td>34,590</td>
</tr>
<tr>
<td>Seven people</td>
<td>39,010</td>
</tr>
<tr>
<td>Eight people</td>
<td>43,430</td>
</tr>
</tbody>
</table>

Table 6: SNAP Participants: Virgin Islands (Center on Budget and Policy Priorities, 2017)

<table>
<thead>
<tr>
<th>SNAP</th>
<th>SNAP Children</th>
<th>Share of State’s Children Receiving SNAP</th>
<th>SNAP Households with Children</th>
<th>Average Monthly SNAP Benefits, All households with children</th>
<th>Percentage of SNAP households with children; gross incomes under 51% of poverty</th>
<th>Percentage of SNAP Households with Children, with Gross incomes between 51-100% of poverty</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>19,891,200</td>
<td>27%</td>
<td>9,509,900</td>
<td>$393</td>
<td>45%</td>
<td>37%</td>
</tr>
<tr>
<td>Virgin Islands</td>
<td>12,500</td>
<td>6,300</td>
<td>$524</td>
<td>53%</td>
<td></td>
<td>30%</td>
</tr>
</tbody>
</table>

Schools & Percent of Youth (under 18) below Poverty by Estate

Source: U.S. Census Bureau; Decennial Census 2010, TIGER/Line Shapefile, 2017; state, United States Virgin Islands, Current Estate State-based Shapefile. Homeland Infrastructure Foundation - Level Data (HIFLD), June 2019.
WIC Participation

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Women</td>
<td>706</td>
<td>721</td>
<td>740</td>
<td>735</td>
<td>744</td>
<td>732</td>
<td>692</td>
</tr>
<tr>
<td>Total Infants</td>
<td>644</td>
<td>655</td>
<td>683</td>
<td>689</td>
<td>717</td>
<td>711</td>
<td>650</td>
</tr>
<tr>
<td>Total Children</td>
<td>1,495</td>
<td>1,517</td>
<td>1,484</td>
<td>1,513</td>
<td>1,523</td>
<td>1,533</td>
<td>1,495</td>
</tr>
<tr>
<td>Total Participants</td>
<td>2,845</td>
<td>2,893</td>
<td>2,907</td>
<td>2,937</td>
<td>2,984</td>
<td>2,976</td>
<td>2,836</td>
</tr>
</tbody>
</table>

Table 7: Territory WIC Participation (Food and Nutrition Science, 2018)

State | 2014 | 2015 | 2016 | 2017 | 2018 |
--- | --- | --- | --- | --- | --- |
Virgin Islands | 76.49 | 79.00 | 79.03 | 75.51 | 71.72 |

Table 8: Average Monthly benefit per person (Food and Nutrition Science, 2018)

Free and Reduced Lunch Program

Free and Reduced Lunch programs also support food access in the territory. The table below shows the number of children served annually through this program.

<table>
<thead>
<tr>
<th>Free and Reduced Lunch</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Lunch Total Participation</td>
<td>13,112</td>
<td>12,050</td>
<td>11,261</td>
<td>9,588</td>
<td>5,001</td>
</tr>
<tr>
<td>Total Lunches Served</td>
<td>2,034,313</td>
<td>1,839,191</td>
<td>1,763,157</td>
<td>1,478,904</td>
<td>783,480</td>
</tr>
<tr>
<td>School Breakfast total participation</td>
<td>4,299</td>
<td>3,951</td>
<td>3,536</td>
<td>3,243</td>
<td>955</td>
</tr>
<tr>
<td>Total breakfasts served</td>
<td>691,486</td>
<td>634,515</td>
<td>575,930</td>
<td>514,279</td>
<td>158,551</td>
</tr>
<tr>
<td>Summer Food Service program</td>
<td>7,470</td>
<td>7,707</td>
<td>7,015</td>
<td>3,916</td>
<td>4,346</td>
</tr>
<tr>
<td>Total summer meals served</td>
<td>183,324</td>
<td>227,925</td>
<td>222,208</td>
<td>185,908</td>
<td>115,618</td>
</tr>
</tbody>
</table>

Table 9: Free and Reduced Lunch (Food and Nutritional Service, 2018)

Disability

Accessibility needs are also an indicator and need for inclusion within community. Number of persons by type of disability are shown below, based on 2015 data for the territory.

<table>
<thead>
<tr>
<th>Disability</th>
<th>Total</th>
<th>Black</th>
<th>White</th>
<th>Other Races</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persons 5 years and over</td>
<td>95,527</td>
<td>75,890</td>
<td>11,505</td>
<td>8,132</td>
</tr>
<tr>
<td>With hearing programs</td>
<td>1,608</td>
<td>1,228</td>
<td>258</td>
<td>123</td>
</tr>
<tr>
<td>With Vision problems</td>
<td>2,189</td>
<td>1,787</td>
<td>105</td>
<td>297</td>
</tr>
<tr>
<td>Conditions limit walking/ lifting</td>
<td>4,568</td>
<td>3,792</td>
<td>241</td>
<td>534</td>
</tr>
<tr>
<td>Difficulty learning/ remembering</td>
<td>2,750</td>
<td>2,362</td>
<td>28</td>
<td>360</td>
</tr>
<tr>
<td>Difficulty with personal care</td>
<td>1,818</td>
<td>1,592</td>
<td>44</td>
<td>183</td>
</tr>
<tr>
<td>Person 15 years and older</td>
<td>83,127</td>
<td>65,372</td>
<td>10,965</td>
<td>6,790</td>
</tr>
<tr>
<td>Difficulty going outside alone</td>
<td>2,325</td>
<td>1,935</td>
<td>93</td>
<td>296</td>
</tr>
<tr>
<td>Difficulty in work environment</td>
<td>3,402</td>
<td>2,762</td>
<td>230</td>
<td>410</td>
</tr>
<tr>
<td>Difficulty in labor force</td>
<td>318</td>
<td>262</td>
<td>55</td>
<td></td>
</tr>
</tbody>
</table>

Table 10: PERSONS WITH DISABILITY: TOTAL TERRITORY (EASTERN CARIBBEAN CENTER AND UNIVERSITY OF THE VIRGIN ISLANDS, 2015; ISSUED 2018)
Accessibility Programs
Select programs exist that promote inclusion for all people including those with accessible needs. The table below articulates a few projects that exist throughout the territory connecting on this.

<table>
<thead>
<tr>
<th>Project</th>
<th>Agency</th>
<th>District</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Department of Education</td>
<td>Territory</td>
<td>“To Provide Teachers and Administrators in the Territory with Autism Instructional Practices.”</td>
</tr>
<tr>
<td></td>
<td>Department of Education</td>
<td>St. Thomas/St. John/Water Island</td>
<td>“Qualified Vendors to Install a Fully Accessible &amp; Inclusive Playground in the St. Thomas District.”</td>
</tr>
</tbody>
</table>

Table 11: USVI Department of Property and Procurement (U.S. Virgin Islands Department of Property & Procurement, n.d.)

Mental Health First Aid Corps
"Mental Health First Aid (MHFA) is a public education program which introduces participants to unique risk factors and warning signs of mental health problems in individuals, builds understanding of the importance of early intervention, and teaches individuals how to help in a crisis or with someone experiencing a mental health substance user challenge. AmeriCorps members will serve as Mental Health First Aid Instructors, certified to teach the 8-hour MHFA-USA course to members of the public." (Corporation for National & Community Service, n.d.)

Equity Resilience
This food systems assessment seeks to identify resilient strategies for the territory. FEMA conducted a vulnerability study in 2018 that identifies different variabilities related to disaster. The components in the study include:

- % of 18 years of age below poverty
- % of median household income
- % of noninstitutionalized population with insurance coverage
- % noninstitutionalized population over 18 with disability
- % 25 years of age and over without a high school diploma

Based on this research, the following areas were shown to have the highest vulnerability in terms of resilience. (FEMA, 2018). Within the food systems assessment, to the best of the researcher’s ability, all areas identified in the vulnerability study were included in the outreach for input sessions and interviews. Each island will receive a snapshot that articulates potential priority projects and areas of implementation.

Moderate-Low Vulnerability

<table>
<thead>
<tr>
<th>St Croix</th>
<th>St Thomas</th>
<th>St John</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>East End</td>
<td>Cruz Bay</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Coral Bay</td>
</tr>
</tbody>
</table>

Moderate-High Vulnerability

<table>
<thead>
<tr>
<th>St Croix</th>
<th>St Thomas</th>
<th>St John</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stion Farm</td>
<td>Southside</td>
<td></td>
</tr>
<tr>
<td>Northcentral</td>
<td>Tutu</td>
<td></td>
</tr>
<tr>
<td>Northwest</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

High Vulnerability

<table>
<thead>
<tr>
<th>St Croix</th>
<th>St Thomas</th>
<th>St John</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southwest</td>
<td>Charlotte Amalie</td>
<td></td>
</tr>
<tr>
<td>Southcentral</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Christiansted</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frederiksted</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Risk Vulnerability by island (FEMA, 2018)
Environment

Housing + Shelter

By December 2017, less than 50% of all islands reported power to homes. This led to issues for storage and access to food and water. More than 40% in STT and STJ felt they had to choose between spending money on food versus other needs; and in STX, 27% chose to spend funds on necessities other than food (American Red Cross, 2017).

<table>
<thead>
<tr>
<th>Housing Units</th>
<th>Total</th>
<th>Black</th>
<th>White</th>
<th>Other Races</th>
<th>Vacant Housing</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Housing Units</td>
<td>58,329</td>
<td>34,049</td>
<td>5,777</td>
<td>3,168</td>
<td>7,813</td>
</tr>
<tr>
<td>Persons in Occupied Housing Units</td>
<td>100,768</td>
<td>80,682</td>
<td>11,548</td>
<td>8,159</td>
<td></td>
</tr>
<tr>
<td>Persons per occupied housing unit</td>
<td>2.34</td>
<td>2.37</td>
<td>2.00</td>
<td>2.70</td>
<td></td>
</tr>
<tr>
<td>In owner-occupied units</td>
<td>47,242</td>
<td>37,151</td>
<td>5,897</td>
<td>4,194</td>
<td></td>
</tr>
<tr>
<td>In renter-occupied units</td>
<td>53,526</td>
<td>43,531</td>
<td>4,344</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 12: Occupied Housing Units (Eastern Caribbean Center and University of the Virgin Islands, 2015; issued 2018, p. 182)

The USVI sees impact from owner and renter occupied units. A majority of housing is renter-occupied which is shown through the two comparison tables below of owner occupied and renter-occupied units.

<table>
<thead>
<tr>
<th>Owner- Occupied</th>
<th>Total</th>
<th>Black</th>
<th>White</th>
<th>Other Races</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>20,107</td>
<td>15,929</td>
<td>2,619</td>
<td>1,559</td>
</tr>
<tr>
<td>One family house detached</td>
<td>15,130</td>
<td>12,089</td>
<td>1,775</td>
<td>1,266</td>
</tr>
<tr>
<td>Single Family house detached</td>
<td>1,683</td>
<td>1,468</td>
<td>190</td>
<td>24</td>
</tr>
<tr>
<td>Apartment- 2 units</td>
<td>2,123</td>
<td>1,456</td>
<td>499</td>
<td>168</td>
</tr>
<tr>
<td>Apartment- 3-4 units</td>
<td>671</td>
<td>493</td>
<td>106</td>
<td>72</td>
</tr>
<tr>
<td>Apartment- 5-9 units</td>
<td>207</td>
<td>207</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apartment- 10-19 units</td>
<td>49</td>
<td>33</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>Apartment 20 or more units</td>
<td>32</td>
<td>32</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>211</td>
<td>183</td>
<td></td>
<td>28</td>
</tr>
</tbody>
</table>

Table 13: Owner-Occupied Housing (Eastern Caribbean Center and University of the Virgin Islands, 2015; issued 2018)

<table>
<thead>
<tr>
<th>Renter-Occupied</th>
<th>Total</th>
<th>Black</th>
<th>White</th>
<th>Other Races</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>22,885</td>
<td>18,118</td>
<td>3,158</td>
<td>1,609</td>
</tr>
<tr>
<td>One family house detached</td>
<td>5,424</td>
<td>4,389</td>
<td>580</td>
<td>455</td>
</tr>
<tr>
<td>Single Family house detached</td>
<td>2,175</td>
<td>1,769</td>
<td>195</td>
<td>211</td>
</tr>
<tr>
<td>Apartment- 2 units</td>
<td>4,029</td>
<td>2,705</td>
<td>1,120</td>
<td>203</td>
</tr>
<tr>
<td>Apartment- 3-4 units</td>
<td>4,640</td>
<td>3,600</td>
<td>614</td>
<td>423</td>
</tr>
<tr>
<td>Apartment- 5-9 units</td>
<td>3,254</td>
<td>2,710</td>
<td>396</td>
<td>148</td>
</tr>
<tr>
<td>Apartment- 10-19 units</td>
<td>1,214</td>
<td>1,058</td>
<td>65</td>
<td>91</td>
</tr>
<tr>
<td>Apartment 20 or more units</td>
<td>1,727</td>
<td>1,517</td>
<td>186</td>
<td>24</td>
</tr>
<tr>
<td>Other</td>
<td>423</td>
<td>370</td>
<td></td>
<td>53</td>
</tr>
</tbody>
</table>

Table 14: Renter-Occupied Housing (Eastern Caribbean Center and University of the Virgin Islands, 2015; issued 2018)
Due to the discrepancy between rentable properties and owned properties there is renter burden that is shown on the map below.

**Percent of Occupied Rental Units Spending 35% or more of Income on Rent in 2009**

![Maps showing renter cost burden](image)

About 86% of USVI homes were impacted with the hurricanes. A CASPER survey was completed in September 2017 and found less than 20% of homes had been undamaged or completely repaired; 50% had begun repairs; and 31% had still not had any repairs --- 10% of this group said they didn’t feel safe in their home (Task Force Advisory Committee, 2018)

<table>
<thead>
<tr>
<th>Level of Damage</th>
<th>Owner-Occupied</th>
<th>Renter-Occupied</th>
<th>Total Households</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of Households</td>
<td>% of Damaged Households</td>
<td>No. of Households</td>
</tr>
<tr>
<td>Minor Damage</td>
<td>11,827</td>
<td>83%</td>
<td>5,525</td>
</tr>
<tr>
<td>Major Damage</td>
<td>1,847</td>
<td>13%</td>
<td>2,688</td>
</tr>
<tr>
<td>Severe Damage</td>
<td>515</td>
<td>4%</td>
<td>125</td>
</tr>
<tr>
<td>Total</td>
<td>14,189</td>
<td>100%</td>
<td>8,338</td>
</tr>
</tbody>
</table>

Table 15: Housing Units Damaged by Severity and Occupant Type for FEMA Individual Assistance (Task Force Advisory Committee, 2018)

Approximately 16,550 housing units or more than 28% of the housing inventory was moderately to severely damaged. An estimated 44,250 households exist (U.S. Department of Housing and Urban Development, Office of Policy Development and Outreach, 2017).
There was significant loss of rental units both from market change and the hurricanes, and affordable housing has been constantly challenging for St John (FEMA, 2018).

<table>
<thead>
<tr>
<th></th>
<th>West STT</th>
<th>East STT</th>
<th>Total STT</th>
<th>West STX</th>
<th>East STX</th>
<th>Total STX</th>
<th>STJ</th>
<th>USVI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Occupied Households</strong></td>
<td>14,925</td>
<td>7,110</td>
<td>22,035</td>
<td>10,376</td>
<td>8,686</td>
<td>19,062</td>
<td>1,900</td>
<td>42,997</td>
</tr>
<tr>
<td><strong>Owner Occupied Households</strong></td>
<td>5,387</td>
<td>3,621</td>
<td>9,008</td>
<td>5,867</td>
<td>4,811</td>
<td>10,678</td>
<td>885</td>
<td>20,571</td>
</tr>
<tr>
<td><strong>Renter Occupied Households</strong></td>
<td>9,538</td>
<td>3,489</td>
<td>13,027</td>
<td>4,509</td>
<td>3,875</td>
<td>8,384</td>
<td>1,015</td>
<td>22,426</td>
</tr>
<tr>
<td><strong>Net Demand</strong></td>
<td>2,320</td>
<td>957</td>
<td>3,277</td>
<td>748</td>
<td>554</td>
<td>1,302</td>
<td>278</td>
<td>4,857</td>
</tr>
<tr>
<td><strong>Proposed Development</strong></td>
<td>1,911</td>
<td>788</td>
<td>2,699</td>
<td>616</td>
<td>456</td>
<td>1,072</td>
<td>229</td>
<td>4,000</td>
</tr>
</tbody>
</table>

Table 16: USVI Resilient Affordable housing plan (Task Force Advisory Committee, 2018)

**Senior Housing:** (Lutheran Services of the Virgin Islands , 2019)

Lutheran Social Services of the Virgin Islands
- Social work services
- Transportation
- Limited nursing managed care
- Recreational programs

Flambouyant Gardens (STX) – 56 subsidized apartments, with six units for wheelchair access
Ebenezer Gardens (STJ) – 42 units for independent living - also on Hospital Ground in Charlotte Amalie
Herbert Grigg Home for the Elderly- 80 units with long-term care
Queen Louise Home for the Elderly – currently operating 29 beds

Within the Task Force Report, additional suggestions were made for senior housing strengthening, including expansion of the Herbert Grigg Home for the Elderly; strengthening of the Queen Louise Home for the Elderly. (Task Force Advisory Committee, 2018)

**Shelter:**
- STJ currently has no centers capable of functioning as shelters (FEMA, 2018)
  - Most community members need access to public shelters for safety during the storm

**Transportation**

Much of the infrastructure prior to the storm was aging and fragile. Strom damage included roads, maritime facilities and airports. Throughout the territory, many residents are now served by single lane roads with fragile condition. Continued repairs exist from DPW FHWA and FEMA and restoration requires more than $50 million for surface and wall repair; debris removal is an additional $30 million. FHWA is funding another $20 million for traffic signal and signage. (Task Force Advisory Committee, 2018)

**Public Transportation** (Task Force Advisory Committee, 2018)
- Public bus system, shared-ride passenger taxis (VITRAN) - $1 fee
- Open-air safari taxi- multi-destination vans
- Open-air safari “dollar rides” – do not have a schedule but do occur frequently
- Private taxis
- USVI Taxicab Commission regulates taxis and fares

**Seaports** (Task Force Advisory Committee, 2018)

Many marine facilities were damaged with the storms and are still repairing docks, barges, and facilities

**STT:**
Edward Wilmoth Blyden iv Marine Terminal – Charlotte Amalie
Routes:
- St. Thomas, St. John and Tortola
- St Thomas and St Croix
- Houses the US Customs clearance for St Thomas

Urman Victor Fredericks Marine Terminal- Red Hook
Routes:
- St Tomas and St John
- British Virgin Islands

Cruise Ships
- VIPA – Austin “Babe” Monsanto Marine Facility
- West Indian Company Ltd (WICO): Owned by Public Finance Authority (VIPFA)

**STX**

Gallows Bay
- Mini-cruise vessels
- Inter-island sloops
- Ferries
- Private yachts
- Cargo vessels
- USCG vessels

Ann E. Abramson – Frederiksted
- Cruise ship dock

Wifred “Bomba” Allick Port. The Gordon A. Finch Molasses Pier
- Commercial and industrial port
- Molasses for the Virgin Islands Rum Industries Limited distillery
- Liquid asphalt, bulk cargo and construction materials for industry

**STJ**

Loredon L. Boynes Sr. Dock
- Passenger port – Cruz Bay

Theovald Eric Moorehead Dock + Terminal – Enighed Pone
- Main cargo and car barge

Victor William Sewer Marine Facility
- Customs dock

**Ferries and Car Barges (Task Force Advisory Committee, 2018)**

- Private ferries/ barges between STT, STX, and STJ and Water Island
  - Also include Puerto Rico, BVI and additional Caribbean islands
- Passenger Ferries – with maintenance subsidy from DPW
  - Varlack Ventures
  - Transportation Services of St John
- Car Barges
  - VIPA car barge terminals on STT and STJ
    - Car Barge access in St John and St Thomas is down to 1 barge (FEMA, 2018)

**Cargo (Task Force Advisory Committee, 2018)**

After the storms less cargo was able to arrive; additionally with other parking and infrastructure damage it took immense time for individuals to pick up their cargo. Throughout the hurricane, mainland support would be sent in and would incur importation fees in the form of an excise tax—only registered non-profit organizations are exempt from these fees – this led to increased stress during the aftermath of the hurricane.

Arrives Crown Bay Dock on STT- US Customs process or at Wilfred “Bomba” Allick Port on STX: Importing cargo is costly and time-consuming and involves the Bureau of Internal Revenue and U.S. customs.
Air Transportation (Task Force Advisory Committee, 2018)

Airports did not open for nearly a month after the hurricane; cargo planes were able to deliver needed towers and materials, including relief flights from US Government. Remediation is still occurring, and flight volumes are still only at 57% of what they were in June 2017.

- **STX**
  o Henry E. Rohlsen- major airport owned by VIPA and operated by FAA
  o St. Croix Svend Aage Ovesen Seaplane- Christiansted

- **STT**
  o Cyril E. King- major airport – owned by VIPA and operated by FAA
  o St. Thomas Seaplane Terminal- Charlotte Amalie

Walking:
There is limited walkability and bikeability throughout the territory and most roads are without shoulders. There are currently no designated bike lanes. However, there are efforts to put in a bike route on STX, this is proposed as a 15-mile bike lane proposal in St Croix- through public-private collaborations with Crucian Bikeways Inc. DPW. (Task Force Advisory Committee, 2018)

Natural Environment

Land Use
Around 70% of the Virgin Islands territory is comprised of agricultural and forested property. The arable land is used for annually cultivated crops; permanent crop land includes space for perennial species including fruit trees, nuts, etc.; permanent pastures are for forage and naturally grown areas that are not harvested; and forest includes land that has a canopy cover of more than 10% and is over .5 hectares in size, and over 5 meters high. The category listed as “other” includes areas with built infrastructure such as roads, transportation, buildings, etc., or may also include barren or unusable space (CIA World Factbook, 2018).

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Land</td>
<td>11.5%</td>
</tr>
<tr>
<td>Arable Land</td>
<td>2.9%</td>
</tr>
<tr>
<td>Permanent Crops</td>
<td>2.9%</td>
</tr>
<tr>
<td>Permanent Pasture</td>
<td>5.7%</td>
</tr>
<tr>
<td>Forest</td>
<td>57.4%</td>
</tr>
<tr>
<td>Other</td>
<td>31.1%</td>
</tr>
</tbody>
</table>

Table 17: Virgin Islands Land Use (CIA World Factbook, 2018)

Land Trust:
The Trust for Public Land - VI projects are listed below (The Trust for Public Land, 2019)
1. Castle Nugent: 1400 acre Castle Nugent Farms (largest privately held property) -STX- Cattle ranch raising- Senepol cattle
2. Coastal and Historic Land Protection- STJ/ STX/ STT
3. Estate Grange- STX - National historic site
4. Estate Maho Bay- STJ - September 2007- purchased 419 acre site
5. Hawksnest Bay- STJ - 1999 protected Gibney Beach in Hawksnest Bay- ranked one of the top 10 beautiful beaches in the world
6. Roosevelt Park – STT - Restore historic Franklin D. Roosevelt Park with private philanthropist
7. Salt River Bay National Historical Park and Ecological Preserve- STX - 120 acres protected
National Parks:
Two-thirds of St John is national park- including beaches, historic sugar plantations, ancient petroglyphs, marine coastal regions, and more (National Park Service, 2019).

- National Monument: Buck Island Reef: STX
- National Historic Site: Christiansted: STX
- National Historical Park and Ecological Preserve: Salt River Bay- STX
- National Park: Virgin Islands- STJ
- National Monument: Virgin Islands Coral Reef: STJ

![Figure 3: National Parks Impact (National Park Service, 2019)](image)

Coastal Management:

- 175 miles of coastal area (Office for Coastal Management National Oceanic and Atmospheric Administration, 2019)
- 106,405 individuals living in coastal population (Office for Coastal Management National Oceanic and Atmospheric Administration, 2019)
- The territory experiences 14 square miles of change between 2002 and 2010
  - Associated with pastures and grassland growing into scrub (Office for Coastal Management National Oceanic and Atmospheric Administration, 2019)
- Total value of reefs is related to tourism, recreation, amenity and coastal protection for fisheries
  - Value estimated at 187 million (Brander & van Beukering, 2013)

Environment Programs

AmeriCorps

SCA AmeriCorps: "Members will protect, restore and enhance public lands and waters as well as natural, cultural, and historical resources through the following duties: educating others through interpretative programs, tours, or programs, providing visitor services, leading volunteers in service activities, removing invasive plants/planting native vegetation, trail restoration/creation, wildlife/fisheries banding, capturing, relocating, conducting surveys, assessments, or inventories, or conducting sampling…” (Corporation for National & Community Service, n.d.)
Water

USVI has little natural water. Most residents use cisterns to collect rainwater and have access to water supply through WAPA, the water and power authority of the territory. WAPA produces freshwater through reverse osmosis plant on STX and STT.

WAPA:

WAPA experienced storm damage to tanks in STX and was operating at 50% capacity for months after storm. In STT, due to damage to tanks, WAPA went out of service for quality issue in October 2017 until June 2018. WAPA produces 6 million gallons/day of potable water and supplies STJ, STT, and STX (around 13,000 customers). (Task Force Advisory Committee, 2018)

<table>
<thead>
<tr>
<th>Source of Water</th>
<th>Total</th>
<th>Black</th>
<th>White</th>
<th>Other Races</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public system only</td>
<td>10,631</td>
<td>9,357</td>
<td>510</td>
<td>765</td>
</tr>
<tr>
<td>Public system and cistern</td>
<td>9,605</td>
<td>8,109</td>
<td>555</td>
<td>941</td>
</tr>
<tr>
<td>Cistern, tank, drum, or lake</td>
<td>22,592</td>
<td>16,538</td>
<td>4,649</td>
<td>1,405</td>
</tr>
<tr>
<td>Some other source</td>
<td>164</td>
<td>43</td>
<td>64</td>
<td>57</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sewage Disposal</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Public sewer</td>
<td>21,551</td>
<td>18,544</td>
<td>1,224</td>
<td>1,783</td>
</tr>
<tr>
<td>Septic tank or cesspool</td>
<td>21,152</td>
<td>15,250</td>
<td>4,517</td>
<td>1,385</td>
</tr>
<tr>
<td>Some other means</td>
<td>288</td>
<td>252</td>
<td>36</td>
<td></td>
</tr>
</tbody>
</table>

Table 18: Water and Sewage (Eastern Caribbean Center and University of the Virgin Islands, 2015; issued 2018)

Waste

Waste Management

Waste management in the territory includes waste collection and disposal and wastewater collection, treatment and disposal. This is done by VIWMA: Virgin Islands Waste Management Authority. Infrastructure includes bin sites, transfer stations, landfills, sewage pipes, pumping stations and wastewater treatment facilities. Wastewater treatment plants could not operate during power outages, which led to raw sewage in streets. After the hurricane, DPNR cleared 479 sunken vessels. By February 2018, debris management had recovered nearly 700,000 cubic yards of debris.

Solid Waste:

There are 20-cubic yard collection bins at roadside locations on STT, STJ, and STX; 15% of the territory have a residential collection services performed by VIWMA (Virgin Islands Waste Management Authority, n.d.). VIWMA hauls waste from centers and ins to landfills on Aguilla (STX) or Bovoni (STT).

VIWMA hauls waste from centers and ins to landfills on Aguilla (STX) or Bovoni (STT)

- Both of these have violated federal laws and regulations (air quality pollution and are under consent decrees by EPA to close by 2021)
- Anguilla is also in too close of proximity to the Airport in STX and is resulting in risk of bird strikes
- There is a need to develop models for island-scale solid waste management (FEMA, 2018)
- There is also no burning allowed on the territory — which includes storm-generated waste
There is a need to also create an area for organic waste, as this currently comprises 30% of the territory’s total waste. There are opportunities to cooperate between organizations to develop a composting program and redevelopment of topsoil and general environmental best practices (Task Force Advisory Committee, 2018).

**Recycling**

The territory does not currently have residential recycling or composting available. The little recycling that is offered is shipped off for processing and incurs additional transportation costs and custom fees upon reentry. St John has determined the following implementation steps in their recovery plan (FEMA, 2018). This effort is working to identify the following:

- Review recycling studies and financial feasibility for recycling location
- Design a multipurpose recycling and composting facility

Based on the USVI Task Force Report, there is a need for a territory-wide recycling program. This includes the need for public outreach and awareness of what materials can be recycled as well as infrastructure to recycle. (Task Force Advisory Committee, 2018)

**Climate**

According to the Environmental Protection Agency, climate change is a reality for the Virgin Islands. These changes will likely increase the severity and frequency of storms, temperature of air and water, and ability for fresh water. This will then impact the coral reef system and other aspects of the islands’ natural environment (EPA, 2016). These shifts in temperature may impact livestock due to drought and heat, and also reduce water availability during the dry season. Specifically, EPA stated that other tropical countries facing climate change see reduction in banana and plantain yields and potentially sugar cane (EPA, 2016).

The following statements were found through the research of the Task Force Advisory Committee:

- temperatures are likely to increase by 1.4-2.6 degrees by 2050s
- trends indicate the USVI will become drier throughout the year
  - this may increase the likelihood of wildfires as well as new constraints for production and general environmental resource management
- rising sea levels will also impact the territory; which may lead to salinization of reservoirs in the territory
- increase in mean sea level may also increase tsunami activity
- climate change will impact health of reef systems and their ability to support and recover after disturbances

Based on the 2018 USVI Hurricane Recovery and Resilience Task Force report, by 2050, 23 critical facilities and 13 miles of electric lines, as well as 199 structures throughout the territory will experience flooding due to sea level rise; which is expected to raise to 6 ft sea level increase by the end of the century, which will then impact roads additional structures and facilities (Task Force Advisory Committee, 2018).
Economy

The USVI has numerous industries and organizations throughout the territory. The map below highlights hospitals, grocers, schools, parks and restaurants throughout the territory.

The U.S. Virgin Islands

Industry

The three primary employment industries in the U.S. Virgin Islands include Territory Government; Services including retail, trade, public administration, and tourism- leisure and hospitality.

Based on Figure 4, there are dips and peaks within each industry overtime. In 2018 you can see the dramatic decline of employment due to the hurricanes.
In addition to the top industries, there are 25 major employers in the territory.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Company</th>
<th>Status after the Storms</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>K-Mart</td>
<td>Open</td>
</tr>
<tr>
<td>2</td>
<td>Ritz Carlton</td>
<td>Long-term closure</td>
</tr>
<tr>
<td>3</td>
<td>Marriott Frenchman’s Reef</td>
<td>Long-term closure</td>
</tr>
<tr>
<td>4</td>
<td>Caneel Bay Resort</td>
<td>Long-term closure</td>
</tr>
<tr>
<td>5</td>
<td>HDVI Holding (Home Depot)</td>
<td>Open</td>
</tr>
<tr>
<td>6</td>
<td>Westin Resort</td>
<td>Long-term closure</td>
</tr>
<tr>
<td>7</td>
<td>World Fresh Market (Pueblo)</td>
<td>Open</td>
</tr>
<tr>
<td>8</td>
<td>Sugar Bay Resort and Spa</td>
<td>Long-term closure</td>
</tr>
<tr>
<td>9</td>
<td>Cost-U-Less</td>
<td>Long-term closure</td>
</tr>
<tr>
<td>10</td>
<td>Buccaneer Hotel</td>
<td>Open</td>
</tr>
</tbody>
</table>

Tourism accounts for a large percentage of economic impact. Since the hurricanes, this has declined immensely. Following the storm, the following companies experienced closures or remained open.
Due to the hurricanes in 2017, territory visitor levels dropped dramatically the following year.

![Figure 5: Total Visitor Arrivals (Bureau of Economic Research, 2019)](image)

**Employment**

<table>
<thead>
<tr>
<th>Industry</th>
<th>No. Employed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction &amp; Mining</td>
<td>1,480</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>622</td>
</tr>
<tr>
<td>Transportation, Warehouse &amp; Utilities</td>
<td>1,411</td>
</tr>
<tr>
<td>Wholesale &amp; Retail Trade</td>
<td>6,664</td>
</tr>
<tr>
<td>Financial Activities</td>
<td>2,132</td>
</tr>
<tr>
<td>Leisure and Hospitality</td>
<td>7,372</td>
</tr>
<tr>
<td>Information</td>
<td>625</td>
</tr>
<tr>
<td>Services (professional &amp; business, education, health &amp; other)</td>
<td>9,028</td>
</tr>
<tr>
<td>Federal Government</td>
<td>937</td>
</tr>
<tr>
<td>Territorial Government</td>
<td>9,895</td>
</tr>
</tbody>
</table>

Table 21: Employed Civilians by Industry; (Caribbean Exploratory Research Center, 2019)

While there are numerous individuals that work in different sectors and businesses within the community, several also have home-based operations and businesses on property. The table below illustrates the number of businesses on property throughout the territory.

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Black</th>
<th>White</th>
<th>Other Races</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Territory</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All single-family dwellings</td>
<td>25,045</td>
<td>20,267</td>
<td>2,740</td>
<td>2,039</td>
</tr>
<tr>
<td>Business on property</td>
<td>724</td>
<td>542</td>
<td>100</td>
<td>82</td>
</tr>
<tr>
<td><strong>St Croix</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All single family dwellings</td>
<td>13,417</td>
<td>10,879</td>
<td>826</td>
<td>1,713</td>
</tr>
<tr>
<td>Business on property</td>
<td>313</td>
<td>222</td>
<td>43</td>
<td>47</td>
</tr>
<tr>
<td><strong>St Thomas and St John</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All single family dwellings</td>
<td>11,628</td>
<td>9,388</td>
<td>1,914</td>
<td>325</td>
</tr>
<tr>
<td>Business on property</td>
<td>411</td>
<td>319</td>
<td>57</td>
<td>34</td>
</tr>
</tbody>
</table>

Table 22: Business On Property (Eastern Caribbean Center and University of the Virgin Islands, 2015; issued 2018)
Many businesses on residential property may include agricultural businesses. Within the US Virgin Islands there are 219 farms, with an overall average of 26.9 acres per farm. Listed below are the number of farms by category (USDA, 2009).

### Occupation

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Total</th>
<th>Black</th>
<th>White</th>
<th>Other Races</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virgin Islands Territory</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Employed Civilian Workers*</td>
<td>29,107</td>
<td>23,450</td>
<td>3,245</td>
<td>2,412</td>
</tr>
<tr>
<td>Food Preparation and Service</td>
<td>2,378</td>
<td>1,908</td>
<td>321</td>
<td>149</td>
</tr>
<tr>
<td>Farming, Forestry, and Fishing</td>
<td>1,225</td>
<td>970</td>
<td>138</td>
<td>117</td>
</tr>
<tr>
<td>Retail Trade (Food Stores)</td>
<td>1,057</td>
<td>844</td>
<td>71</td>
<td>142</td>
</tr>
<tr>
<td>Retail Trade (Eating and Drinking Places)</td>
<td>1,802</td>
<td>1,347</td>
<td>373</td>
<td>83</td>
</tr>
<tr>
<td>Agriculture</td>
<td>29,107</td>
<td>23,450</td>
<td>3,245</td>
<td>22,412</td>
</tr>
</tbody>
</table>

Table 23: Employed Civilian Workers by Race, Selected Food-Related Occupations: (Eastern Caribbean Center and University of the Virgin Islands, 2015; issued 2018)

### Sales by Commodity

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Total # of Farms</th>
<th>Total Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field and Forage</td>
<td>37</td>
<td>$49,104</td>
</tr>
<tr>
<td>Vegetables</td>
<td>93</td>
<td>$366,195</td>
</tr>
<tr>
<td>Fruits and Nuts</td>
<td>117</td>
<td>$216,877</td>
</tr>
<tr>
<td>Horticulture Specialties</td>
<td>21</td>
<td>$946,636</td>
</tr>
<tr>
<td>Livestock</td>
<td>107</td>
<td>$462,540</td>
</tr>
<tr>
<td>Milk</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Poultry and Eggs</td>
<td>7</td>
<td>-</td>
</tr>
<tr>
<td>Fish and Aquaculture</td>
<td>1</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 24: Sales by Commodity Group or Product (USDA, 2009)

### Farms by Value of Agricultural Product Sold

<table>
<thead>
<tr>
<th>Value Range</th>
<th>Total # of Farms</th>
<th>Total Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>$500 - $1,199</td>
<td>61</td>
<td>$46,052</td>
</tr>
<tr>
<td>$1,200 - $2,499</td>
<td>46</td>
<td>$71,140</td>
</tr>
<tr>
<td>$2,500 - $4,999</td>
<td>44</td>
<td>$150,004</td>
</tr>
<tr>
<td>$5,000 - $7,499</td>
<td>31</td>
<td>$178,750</td>
</tr>
<tr>
<td>$7,500 - $9,999</td>
<td>9</td>
<td>$79,415</td>
</tr>
<tr>
<td>$10,000 +</td>
<td>28</td>
<td>$1,546,661</td>
</tr>
<tr>
<td>Totals</td>
<td>219</td>
<td>$2,071,022</td>
</tr>
<tr>
<td>Averages per Farm</td>
<td>-</td>
<td>$9,457</td>
</tr>
</tbody>
</table>

Table 26: Farms by Value of Agricultural Products Sold (USDA, 2009)

### Size of Farms by year

<table>
<thead>
<tr>
<th>Acres</th>
<th># of Farms 2002</th>
<th># of Farms 2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>St. Croix</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 3</td>
<td>37</td>
<td>56</td>
</tr>
<tr>
<td>3-9</td>
<td>37</td>
<td>45</td>
</tr>
<tr>
<td>10-19</td>
<td>32</td>
<td>28</td>
</tr>
<tr>
<td>20-49</td>
<td>11</td>
<td>8</td>
</tr>
<tr>
<td>50-99</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>100+</td>
<td>14</td>
<td>8</td>
</tr>
<tr>
<td>Total # of Farms</td>
<td>139</td>
<td>160</td>
</tr>
<tr>
<td>St. Thomas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 3</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>3-9</td>
<td>17</td>
<td>18</td>
</tr>
<tr>
<td>10-19</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>20-49</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>50-99</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>100+</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Total # of Farms</td>
<td>52</td>
<td>59</td>
</tr>
</tbody>
</table>

Table 25: Size of Farms, 2002 and 2007 (USDA, 2009)
Workforce
Of the workforce, 39.3% of the territory is employed. Primary occupations include managerial and professional specialties; technical, sales and administrative support; service industry including food preparation, health services, personal services, etc.; farming, forestry and fishing; precision production and repairs; operators, fabricators and laborers. (Eastern Caribbean Center and University of the Virgin Islands, 2015; issued 2018)

<table>
<thead>
<tr>
<th>Labor Force Status</th>
<th>Total</th>
<th>Black</th>
<th>White</th>
<th>Other Races</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persons 16 years and over</td>
<td>83,127</td>
<td>65,372</td>
<td>10,965</td>
<td>7,790</td>
</tr>
<tr>
<td>In Labor Force</td>
<td>32,677</td>
<td>26,326</td>
<td>3,385</td>
<td>2,966</td>
</tr>
<tr>
<td>Percent of total</td>
<td>39.3%</td>
<td>40.3%</td>
<td>30.9%</td>
<td>43.7%</td>
</tr>
<tr>
<td>Armed Forces</td>
<td>351</td>
<td>351</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Civilian Labor Force</td>
<td>32,326</td>
<td>25,975</td>
<td>3,385</td>
<td>2,966</td>
</tr>
<tr>
<td>Employed</td>
<td>29,107</td>
<td>23,450</td>
<td>3,245</td>
<td>2,412</td>
</tr>
<tr>
<td>At work 40 hours or more</td>
<td>18,329</td>
<td>15,332</td>
<td>1,820</td>
<td>1,177</td>
</tr>
<tr>
<td>Unemployed</td>
<td>3,219</td>
<td>2,526</td>
<td>140</td>
<td>553</td>
</tr>
<tr>
<td>Percent of civilian labor</td>
<td>10%</td>
<td>9.7%</td>
<td>4.1%</td>
<td>18.7%</td>
</tr>
<tr>
<td>Not in labor force</td>
<td>50,451</td>
<td>39,046</td>
<td>7,580</td>
<td>3,824</td>
</tr>
</tbody>
</table>

Table 27: LABOR FORCE CHARACTERISTICS: TERRITORY WIDE (EASTERN CARIBBEAN CENTER AND UNIVERSITY OF THE VIRGIN ISLANDS, 2015; ISSUED 2018)

Data Profile

Table DP-1. United States Virgin Islands Data Profile, 2000 to Current

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>2010</th>
<th>Current</th>
<th>Average Annual Change (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2000 to 2010</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2010 to Current</td>
</tr>
<tr>
<td>Total resident employment</td>
<td>44,500</td>
<td>47,272</td>
<td>43,200</td>
<td>0.6</td>
</tr>
<tr>
<td>Unemployment rate</td>
<td>6.8</td>
<td>8.1</td>
<td>10.7</td>
<td>-1.4</td>
</tr>
<tr>
<td>Nonfarm payroll jobs</td>
<td>41,600</td>
<td>44,200</td>
<td>36,250</td>
<td>0.6</td>
</tr>
<tr>
<td>Total population</td>
<td>108,612</td>
<td>106,405</td>
<td>105,000</td>
<td>-0.2</td>
</tr>
<tr>
<td>Total households</td>
<td>40,848</td>
<td>43,214</td>
<td>44,250</td>
<td>0.6</td>
</tr>
<tr>
<td>Owner households</td>
<td>18,878</td>
<td>20,700</td>
<td>20,850</td>
<td>1.0</td>
</tr>
<tr>
<td>Percent owner</td>
<td>46.0</td>
<td>47.9</td>
<td>47.1</td>
<td>0.2</td>
</tr>
<tr>
<td>Renter households</td>
<td>21,970</td>
<td>22,514</td>
<td>23,400</td>
<td>0.2</td>
</tr>
<tr>
<td>Percent renter</td>
<td>54.0</td>
<td>52.1</td>
<td>52.9</td>
<td>0.5</td>
</tr>
<tr>
<td>Total housing units</td>
<td>50,202</td>
<td>55,901</td>
<td>59,900</td>
<td>1.1</td>
</tr>
<tr>
<td>Owner vacancy rate</td>
<td>12.8</td>
<td>3.7</td>
<td>3.8</td>
<td>0.9</td>
</tr>
<tr>
<td>Rental vacancy rate</td>
<td>10.1</td>
<td>13.6</td>
<td>15.0</td>
<td></td>
</tr>
</tbody>
</table>

Sources: U.S. Census Bureau; U.S. Department of Housing and Urban Development; 2013 Virgin Islands Community Survey; estimates by analysts

Figure 6: United States Virgin Island Data Profile- 2000 to Current (U.S. Department of Housing and Urban Development, Office of Policy Development and Outreach, 2017)
Farm employment account for labor and job ownership in the territory.

<table>
<thead>
<tr>
<th>Farm Employment</th>
<th>Full Owners</th>
<th>Part Owners</th>
<th>Tenants</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Farms</strong></td>
<td>109</td>
<td>21</td>
<td>89</td>
<td>219</td>
</tr>
</tbody>
</table>

Table 28: Farm Employment: (USDA, 2009)

<table>
<thead>
<tr>
<th>Labor Status</th>
<th>Less than 25 days</th>
<th>25 to 149 days</th>
<th>150+ days</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unpaid Labor</td>
<td>31</td>
<td>82</td>
<td>288</td>
<td>401</td>
</tr>
<tr>
<td>Hired Farm Labor</td>
<td>30</td>
<td>39</td>
<td>41</td>
<td>110</td>
</tr>
</tbody>
</table>

Table 29: Labor Status: (USDA, 2009) [in total number of workers]

**Unemployment**
According to the USDA Profile below and the Eastern Caribbean Center, there is approximately 10% of the labor force that is unemployed based on 2015 data. This percentage has increased since both the 2000 and 2010 census.

**Nutrition Programs:**
Programs listed below cross-cut areas of equity, wellness and environment. However, all have a significant impact on the local economy. It is important to recognize the significance of community programming and financial support that goes to individuals and also builds capacity for economic development and growth.

**Supplemental Nutrition Assistance Programs:**
SNAP can also be a significant economic contributor to grocers, farmers markets and the overall economy. In 2017, the total issuance of $56,766,573 allowed for families to purchase their food products (Food and Nutritional Service, 2018).

Additionally, in August 2019, farmers in the USVI became eligible to accept SNAP benefits through EBT payment. Offering these incentives through farmers markets purchase have increased fruit and vegetable purchased at the market—SNAP is viewed as a way to increase their customer base (Murphy, 2019).

**Futures | National Dislocated Worker Grant:**
Restoring Futures is a “Workforce Development effort to bring together workers with employers through On-the-Job Training for good jobs throughout the U.S. Virgin Islands. Restoring Futures is funded by $4,997,845 National Dislocated Worker Grant awarded to ICF by the U.S. Department of Labor, Employment and Training Administration.” This project encompasses the following industries: for-profit commercial, government agencies, and non-profit organizations. Partners include: Virgin Islands Department of Labor, Virgin Island Economic Development Authority, and Virgin Islands Workforce Development Board. (Workforce180, 2019)
Incubator Program:
“The Incubator Program is designed to help new and start-up businesses develop into full-fledged businesses by providing management training and other assistance enabling these businesses to grow and contribute to the economic development of the Territory.” (U.S. Virgin Islands Economic Development Authority, 2018)

<table>
<thead>
<tr>
<th>Key Performance Indicators (KPI)</th>
<th>Actual FY 17</th>
<th>Target FY 18</th>
<th>Actual FY 2018 (as of 3/31/18)</th>
<th>Planned FY 19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of entrepreneurs assisted</td>
<td>30</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Number of businesses developed into full-fledged businesses</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 30: Incubator Program Outputs and Projections (U.S. Virgin Islands Economic Development Authority, 2018)

Economic Development Programs
There are several existing programs and organizations that support economic development and growth within the territory. While these do not specifically connect to food, many could include food business support, opportunities for connections with local food procurement, and general redevelopment for more resilient food system approaches.

Enterprise Zone Commission:
“The Enterprise Zone Commission (EZC) is responsible for the revitalization of designated blighted and severely distressed areas in the U.S. Virgin Islands that were once social and economically vibrant communities. The EZC provides tax incentives and economic development benefits and helps to reduce fiscal and regulatory constraints that hinder economic growth. In addition, the EZC encourages collaboration between public, private, and non-profit entities in support of economic growth and development.” (U.S. Virgin Islands Economic Development Authority, 2018)

Enterprise Zone Tax Initiatives:
“The Enterprise Zone Commission (EZC) offers a unique and attractive tax incentive program for companies located in our historic towns. The EZC’s mandate is to revitalize once vital vibrant communities that are now considered to be distressed. In achieving this objective within the Territory, the EZC seeks to provide appropriate investments, tax benefits, and regulatory relief of sufficient importance to encourage the business community to commit financially. Below are some of the benefits your business can reap if eligible for the EZC tax incentive program: 90% reduction in corporate income tax, 90% reduction in personal income tax, 100% exemption on gross receipt tax, 100% exemption on business property tax.” (U.S. Virgin Islands Economic Development Authority, 2018)

<table>
<thead>
<tr>
<th>2-Key Performance Indicators (KPI)</th>
<th>Actual FY 17</th>
<th>Target FY 18</th>
<th>Actual FY 2018 (as of 3/31/18)</th>
<th>Planned FY 19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of collaborative events held</td>
<td>5</td>
<td>12</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Number of rehabilitated properties completed</td>
<td>3</td>
<td>10</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Number of properties boarded up (for safety concerns)</td>
<td>1</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Number of public meetings held towards revitalization</td>
<td>7</td>
<td>3</td>
<td>4</td>
<td>8</td>
</tr>
</tbody>
</table>

Table 31: Enterprise Zone Commission Outputs and Projections (U.S. Virgin Islands Economic Development Authority, 2018)

Hotel Development Program:
“The Hotel Development Program is designed to assist in the development of new hotels, resorts and other related tourism facilities in the U.S. Virgin Islands. The legislation allows hotel developers to use a portion of their hotel occupancy and casino taxes to repay long-term loans, which can help in obtaining financing for projects. Monies generated from the Hotel Development and Finance Program are deposited into a separate hotel development and finance trust fund which is established for each approved project. Currently, there is a proposed extension and expansion of the Hotel Development Act of 2011” (U.S. Virgin Islands Economic Development Authority, 2018)
Financing Development and Redevelopment:
“Tax Increment Financing (TIF) is a technique used by local governments to finance development or redevelopment activities. TIF may be used to finance a variety of costs and improvements pertaining to public infrastructure, land acquisition, demolition and utilities, including the following: sewer expansion and repair, water supply, street construction, affordable/low income housing, libraries, schools, traffic control, park improvements, parking structure, utility lines.” (U.S. Virgin Islands Economic Development Authority, 2018)

Economic Development Commission Tax Incentive Program:
The Economic Development Commission (EDC) offers a unique and attractive tax incentive program for companies located in the USVI. This is a competitive offshore tax benefit program that is sanctioned by the U.S. Government. Below are some of the benefits your business can reap if eligible for the EDC program: 90% reduction in corporate income tax, 90% reduction in personal income tax, 100% exemption on gross receipt tax, 100% exemption on business property tax, 100% exemption on excise tax payments, Reduction in the customs duty from the standard 6% to 1%; tax reduction on royalty income from software developed in the USVI and sold to non-US customers and availability of rental space at below market rates in the St. Croix and St. Thomas Industrial Parks.” (U.S. Virgin Islands Economic Development Authority, 2018)

Education
Schools were greatly impacted by the hurricanes in 2017. Six schools did not open after the hurricanes in 2018, and many are still rebuilding or consolidating. Schools present an interesting opportunity and need for food access as well as alternative learning options regarding food production, processing, and general awareness about food systems and the interconnectivity. Schools also have ability to provide school breakfast and lunch programs that can support procurement of locally produced food.

Public School Enrollment
Total Number of Schools In-Session Pre and Post Hurricane: (Caribbean Exploratory Research Center, 2019)

<table>
<thead>
<tr>
<th>Type</th>
<th>Pre (SY2015-2016)</th>
<th>Post (SY2018-2019)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
<td>31</td>
<td>25</td>
</tr>
<tr>
<td>Private/Parochial</td>
<td>28</td>
<td>-</td>
</tr>
</tbody>
</table>

Figure 8: Schools in Session following Hurricanes- Pre-Hurricane and Post Hurricane (Caribbean Exploratory Research Center, 2019)

Schools throughout the territory fall within different poverty zones that may impact food access and additional impacts on students and families. The maps below showcase poverty overlays along with location of schools.
Following the hurricanes, schools experienced long term school closures following the hurricanes included the following schools:

<table>
<thead>
<tr>
<th>District</th>
<th>Campus</th>
</tr>
</thead>
<tbody>
<tr>
<td>St. Croix</td>
<td>Pearl B. Larsen Elementary School</td>
</tr>
<tr>
<td></td>
<td>Lew Muckle Elementary School</td>
</tr>
<tr>
<td></td>
<td>Alfredo Andrews Elementary School</td>
</tr>
<tr>
<td></td>
<td>Eulalie Rivera Elementary School</td>
</tr>
<tr>
<td></td>
<td>Alexander Henderson Elementary School</td>
</tr>
<tr>
<td></td>
<td>Elena Christian Jr. High School</td>
</tr>
<tr>
<td></td>
<td>John Woodson Jr. High School</td>
</tr>
<tr>
<td></td>
<td>Arthur Richards Jr. High School</td>
</tr>
<tr>
<td>St. Thomas-St. John</td>
<td>Guy Benjamin Community Center</td>
</tr>
<tr>
<td></td>
<td>E. Benjamin Oliver Elementary School</td>
</tr>
<tr>
<td></td>
<td>Addelita Cancryn Jr. High School</td>
</tr>
<tr>
<td></td>
<td>Gladys Abraham Elementary School</td>
</tr>
</tbody>
</table>

Table 32: Long-Term School Closures- Post Hurricane (Task Force Advisory Committee, 2018)

<table>
<thead>
<tr>
<th>School Year</th>
<th># of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015-2016</td>
<td>13,800</td>
</tr>
<tr>
<td>2016-2017</td>
<td>13,194</td>
</tr>
<tr>
<td>2017-2018</td>
<td>10,886</td>
</tr>
<tr>
<td>2018-2019</td>
<td>10,720</td>
</tr>
</tbody>
</table>

Public schools provide school lunch programs, and many also may include breakfast. This can be supported through federal reimbursements through USDA, offered to ensure students are provided meals. Schools receive subsidies for meals served if they meet federal requirements for each program. This is based off the federal poverty levels. For breakfast programs, families with children in the school must fall between the 130 and 185% of poverty level to received reduced-price meals (USDA Food and Nutrition Service, 2019). There were significant declines in enrollment between school years ‘16-’17 and ‘17-18 for both St. Croix and St. Thomas.

<table>
<thead>
<tr>
<th></th>
<th>St. Croix</th>
<th>St. Thomas</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SY2016-17</td>
<td>SY2017-18</td>
</tr>
<tr>
<td>Breakfast</td>
<td>244,832</td>
<td>42,273</td>
</tr>
<tr>
<td>Lunch</td>
<td>668,058</td>
<td>227,537</td>
</tr>
</tbody>
</table>

Table 33: School Breakfast and Lunch Programs by School District, SY2016-2017 and SY2017-2018 (Caribbean Exploratory Research Center, 2019)

Figure 10: St. Croix | Map generated by Bailey Hanson, Iowa State University Extension and Outreach (Open Street Map)
Schools in St. Croix School District (The Virgin Islands Department of Education)

Addelita Cancryn Junior High School  
Alexander Henderson Elementary School  
Alfredo Andrews Elementary School  
Arthur A. Richards Junior High School  
Charles H. Emanuel Elementary School  
Claude O. Markoe Elementary School  
Elena L. Christian Junior High School  
Eulalie Rivera Elementary School  
Evelyn M. Williams Elementary School  
John H. Woodson Junior High School  
Juanita Gardine Elementary School  
Lew Muckle Elementary School  
Pearl B. Larsen Elementary School  
Ricardo Richards Elementary School

Figure 11: St. Thomas | Map generated by Bailey Hanson, Iowa State University Extension and Outreach (Open Street Map)

Schools in St. Thomas | St. John School District (The Virgin Islands Department of Education)

All Saints Cathedral School  
Antilles School  
Bertha C. Boshulte Junior High School  
Charlotte Amalie High School  
Church of God Academy  
Emanuel Benjamin Oliver Elementary School  
Edith Williams Alternative Academy  
Gladys A. Abraham Elementary School  
Ivanna Eudora Kean High School  
Jane E. Tuitt Elementary School  
Joseph Gomez Elementary School  
Joseph Sibilly Elementary School  
Leonard Dober Elementary School  
Lockhart Elementary School  
Saints Peter and Paul School  
Seventh Day Adventist School  
Ulla F Muller Elementary School  
Virgin Islands Montessori School and International Academy  
Yvonne E. Milliner-Bowsky Elementary School
Schools in St. Thomas | St. John School District (The Virgin Islands Department of Education)
Memorial Moravian School
Gifft Hill School
St. John Christian Academy
Julius E. Sprauve Elementary School
Horace Mann School
*Gifft Hill School also houses a school production garden and the EARTH Service-Learning program in partnership with Iowa State University.

University of the Virgin Islands
Campuses on St. Croix and St. Thomas, online courses
School of Business, School of Education, College of Liberal Arts and Social Sciences, College of Science and Mathematics
Associate degrees, Bachelor’s degrees, Master’s degrees, and PHD programs

USVI Cooperative Extension (University of the Virgin Islands, n.d.)
Offices in Albert A. Sheen Campus on St. Croix, and UVI Campus on St. Thomas
Extension supports education and outreach for agriculture, nutrition, and additional programming related to food systems
Current programs offered through UVICES: (University of the Virgin Islands, n.d.)
- Youth Nutrition & Cooking Class: Ages 11-14, learn about good nutrition and cooking - Safiya Taylor 340.693.1073
- Pesticides Safety Education and Integrated Pest Management Programs- Commercial and private applicator licenses
- UVI AgDiscovery Program - Hands-on learning workshops, laboratory, and field exercises
  - Animal and plant disciplines; wildlife management; veterinary medicine; biotechnology; entomology; food safety; food production; agribusiness; forestry
- Aquaponics Workshop and Program, University of Virgin Islands Cooperative Extension (Aquaponics Workshop, 2019) - Aquaculture production systems, includes vegetable and fish
- Home Demonstration Garden (Urban Gardening)
  - University of Virgin Islands Cooperative Extension Services, “a complete home demonstration garden illustrating gardening techniques, use of native ornamentals, fruit trees and landscaping techniques.”

Food Systems Programs
Food Systems Working Groups
Food Systems working groups or coalitions help support the collective development and understanding of priorities around food systems work. While there aren’t existing coalitions within the territory, there is a non-profit that supports food systems work through advocacy, networking and broad projects relating to food access, resilience, and food sovereignty.
Good Food Coalition | Farm to School Initiative:
“The overall long-term goal of the Farm to School Initiative will be to improve healthy eating habits among school-age children throughout the Virgin Islands by increasing the amount of local fresh fruits and vegetables that are used in school cafeterias.” Sommer Sibilly-Brown

goodfoodcoalition.vi@gmail.com 340-227-3745 (Virgin Islands Food Food Coalition)

Master Gardeners:
Public botanical garden, part of the American Horticulture Society Reciprocal Admissions Program (membership program).
Infoatthegarden@gmail.com

Community Foundations
Community foundations across the territory have unique programs that support their place-based communities in various ways. Many programs that may connect to food systems work include those working with families and youth.

Virtues Project:
“The Virtues Project is an international initiative focused on building peaceful and caring communities aligned to 52 virtues such as compassion, integrity, respect. The Virtues Project promotes community capacity-building to teach positive behaviors and attitudes and contribute to healthy and supportive environments across sectors. We are working in collaboration with the Department of Education to infuse VI culture into the messages and to implement The Virtues Project in the public schools. We are working with the Department of Human Services to disseminate the virtue of the week to Head Start and child care centers with suggested developmentally appropriate activities. The goal is to engage the community in discussion and awareness of the Virtue of the Week in schools, child care settings, home, and the workplace through the media, religious institutions, schools and centers, government agencies, and business organizations.” (Community Foundation of the Virgin Islands, n.d.)

USVI Kids Count:
“USVI Kids Count is part of a national initiative, sponsored by the Annie E. Casey Foundation, to create a detailed community-by-community picture of the condition of children nationwide. There are now KIDS COUNT projects in all fifty states, the District of Columbia, Puerto Rico, and the US Virgin Islands. The Annie E. Casey Foundation annually produces a summary document reporting state-level data and national trends. (Community Foundation of the Virgin Islands, n.d.)

Early Childhood:
“The mission of the CFVI’s Early Childhood involvement is to serve as a facilitator of efforts to promote early childhood experiences that will positively impact children’s development, readiness of school, and later life success. TFC is committed to raising public awareness, increasing parent/family engagement, advising stakeholders on best practices, and serving as a clearinghouse for funding dedicated to early childhood. The Community Foundation of the Virgin Islands (CFVI), through funding from the Annie E. Casey Foundation, compiles and disseminates information on the status of children in the USVI in the KIDS COUNT USVI Data Book. Data collected over the years brought the need to focus on improving the quality of early care and education to the forefront. In response, CFVI established in 2006 an early childhood initiative, entitled The Family Connection (TFC).” (Community Foundation of the Virgin Islands, n.d.)

Junior Angels:
“The Junior Angels Program is an initiative which seeks to introduce youth to the worlds of volunteerism and philanthropy. High school students are partnered with selected community service agencies for internships of up to ten hours each week. Over the years, Junior Angels have been making a difference in the St. Thomas community at organizations such as Christchurch Methodist Education & Outreach, Family Resource Center, Virgin Islands Resource Center for the Disabled, Pistracrkle Theatre, Humane Society, YWCA, Chamber of Commerce, the Boys & Girls Club, and the Virgin Islands Children’s Museum.” (Community Foundation of the Virgin Islands, n.d.)

Education Resilience
While resilience is a cross-cutting aspect of all areas of the community, it is critical to mention within the education sector particularly in regard to educational attainment and school system infrastructure. The Community Needs Assessment conducted by the Caribbean
Exploratory Research Center identified three particular program and service gaps that exist in the Territory regarding education: (Caribbean Exploratory Research Center, 2019)

- Lack of resources for counselors to address mental health and behavioral health needs of children in the public-school system has been identified as a gap in services in the education system
- Challenges accessing and verifying school records for students who requested transfers for students who were displaced also emerged as a gap area
- Lack of after school programs for youth means that many youths may be unsupervised

Of individuals that are 25 years or older, many different levels of education attainment exist.

<table>
<thead>
<tr>
<th>Educational attainment</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 9th grade</td>
<td>5,926</td>
<td>5,617</td>
</tr>
<tr>
<td>9th-12th grade, no diploma</td>
<td>5,632</td>
<td>4,847</td>
</tr>
<tr>
<td>High School Graduate/ GED</td>
<td>10,503</td>
<td>11,095</td>
</tr>
<tr>
<td>Some college or associate degree</td>
<td>5,606</td>
<td>8,008</td>
</tr>
<tr>
<td>Bachelor degree</td>
<td>3,420</td>
<td>4,930</td>
</tr>
<tr>
<td>Graduate or professional degree</td>
<td>2,030</td>
<td>3,199</td>
</tr>
<tr>
<td>Total</td>
<td>33,117</td>
<td>37,696</td>
</tr>
</tbody>
</table>

Table 34: Education Level for USVI Residents, 2015, Age 25 Years and Older: (Eastern Caribbean Center and University of the Virgin Islands, 2015; issued 2018)

Table 35: Educational Attainment, 2015, Age 25 Years and Older: (Center, n.d.)
Wellness

Public health and mental health were also forerunning needs in the Territory (as highlighted from community interviews. We need basic, preventative mental health care. There are many barriers to mental health, such as having on-island capacity for bringing costly mental health services and equipment to the Territory. (Colasacco, Island Health and Wellness, 2019)

Livability

Livability standards, and where you work, live and play is shown to impact your personal health status. A study conducted by Taylor, et. al. reviewed the similarities and differences between United States territories and the United States to understand healthy lifestyle characteristics. The four Healthy Lifestyle Characteristics include “non-smoking, maintaining a healthy weight, daily consumption of five fruits and vegetables, and participation in moderate-intensity physical activity of over 30 minutes at least 5 days per week” (Taylor, Shugart, & Paxton, 2011). The table below reviews the finding from this study. It is shown that Virgin Islanders exceed other locations in fruit and vegetable consumption as well as practice non-smoking habits. However, they rank 3rd in physical activity and unhealthy BMI categories.

![Table 2: Lifestyle Behavior Compliance Rates by Location of Residence](image)

Health

Healthy Eating:
Fruit and vegetable intake: When compared to the United States, the odds of meeting guidelines for fruit and vegetable intake was greater for the U.S. Virgin Islands (Taylor, Shugart, & Paxton, 2011).

Obesity Prevalence:
Overweight and Obesity Rates by Gender Territory Wide (Foundation H. J., Overweight and Obesity Rates for Adults by Gender, 2017), 54% of men are overweight or obese; 75.3% of women are overweight or obese.

Healthcare System:
Majority of participants in the Center for Research and Education in Health Disparities Report expressed concerns about limited resources and high costs, such as the Medicare gap, high cost of insurance and co-pay, large number of uninsured residents, and the overall cost of services. (Callwood, Campbell, Gary, & Radelet, 2012)

The report highlighted current barriers to good health care:
- Concern that health care providers from the U.S. mainland were not culturally competent, and about significant provider-patient communication obstacles based on patients’ use of language that providers may misunderstand
- Concern about patient confidentiality and privacy, trust and confidence in the health system is markedly low; concern for confidentiality is high
- Need for better coordination, planning, and/or financing
Of the total population 22% are covered by Medicaid or CHIP (the State Children’s Health Insurance Program)
Medicaid Financing: (Foundation H. J., 2019)
- Unlike in the 50 states and D.C., annual federal funding for Medicaid in the territories is subject to a statutory cap and fixed matching rate
- Once a territory exhausts its capped federal funds, it no longer receives federal financial support for its Medicaid program during that fiscal year, placing additional pressure on territory resources if Medicaid spending continues beyond the federal cap
- The U.S. Virgin Islands uses CHIP funds as an additional source of funding for children in Medicaid after it has exhausted its Medicaid allotment. It does not offer eligibility to children at a higher income level than the eligibility threshold for Medicaid
- After Hurricanes Irma and Maria hit the USVI in September 2017, Congress included additional funding for these territories in the Bipartisan Budget Act (BBA) of 2018: $142.5 million for USVI ($35.6 million of which were conditional). These relief funds do not require a local/territory match and will expire at the end of September 2019.

Hospitals/ Clinics

<table>
<thead>
<tr>
<th>St. Croix</th>
<th>St. Thomas</th>
<th>St. John</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gov. Juan F. Luis Hospital &amp; Medical Center: Emergency Room</td>
<td>Schneider Regional Medical Center</td>
<td>Morris F. DeCastro Clinic</td>
</tr>
<tr>
<td>Acute Alternative Medial Group: Mt. Welcome Office</td>
<td>St. Thomas Sleep Center &amp; Neurology</td>
<td>Island Health and Wellness Center</td>
</tr>
<tr>
<td>Veterans Hospital</td>
<td>Caribbean Kidney Center</td>
<td>Community Health Clinic Emergency Care</td>
</tr>
<tr>
<td>Veterans Clinic</td>
<td>Virgin Islands Ear, Nose &amp; Throat/Paradise</td>
<td></td>
</tr>
<tr>
<td>Frederiksted Health Care Inc</td>
<td>Surgical</td>
<td></td>
</tr>
<tr>
<td>Beston Hill Medical Center</td>
<td>Virgin Islands Oncology &amp; Hematology</td>
<td></td>
</tr>
<tr>
<td>OrthoCaribbean</td>
<td>Imperial Animal Hospital</td>
<td></td>
</tr>
<tr>
<td>Primary Care, PLLC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>North Shore Health Center</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Health Programs:
Mental Health First Aid Corps is a program implemented in the U.S. Virgin Islands by AmeriCorps (Corporation for National & Community Service). “Mental Health First Aid (MHFA) is a public education program which introduces participants to unique risk factors and warning signs of mental health problems in individuals, builds understanding of the importance of early intervention, and teaches individuals how to help in a crisis or with someone experiencing a mental health substance user challenge. AmeriCorps members will serve as Mental Health First Aid Instructors, certified to teach the 8-hour MHFA-USA course to members of the public.”
Recreation and Walkability
The USVI Walkability Institute—hosted on June 13-14, 2017 by USVI Department of Health, Centers for Disease Control and Prevention, and the Task Force for Global Health. There were multiple locations throughout the territory that conducted a walkability assessment and followed up with the Walkability Action Institute for action planning for implementation and policy recommendations.

There are current reports of limited walkability and bike-ability throughout the territory; most roads are without shoulders (Task Force Advisory Committee, 2018). There are currently no designated bike lanes or signage throughout the territory. The walkability map survey also led to a signed petition by 200 individuals for the 14-mile South Sore Multi-Use Pathway. Here is a 15-mile bike lane proposal in St Croix—through public-private collaborations with Crucian Bikeways Inc. DPW.

Smoking Prevalence:
Smoking prevalence in Virgin Islands 8.3% (Control, n.d.). Virgin Islands Smoke Free Act: Effective February 10, 2011, the Virgin Islands Smoke-Free Act prohibits smoking in virtually all workplaces, including restaurants and bars. The law reflects the commitment of many in ensuring that workers and the public are protected from secondhand smoke. (Health U. D., n.d.)

Alternative Wellness
University of the Virgin Islands Center for Complementary and Alternative Medicine:
- UVI-CCAM is a 2-year pilot research project focusing on the scientific investigation of two VI traditional medicinal plants, sour sop (Annona muricata) and lemon grass (Cymopogon citratus).
- Much of the scientific literature provides data pertaining to a single active ingredient isolated from select medicinal plants. However, US Virgin Islanders believe that several of the components of a botanical remedy act synergistically, working together to provide a more holistic approach for treatment.
- CCAM will seek to provide evidence to support this holistic approach to healing and establish mechanisms for community outreach. The initial focus of the Center for the Study of Complementary and Alternative Medicines also will be on the use of alternative medicines for the treatment of diabetes and skin infections.
- Over time, the Center will expand its exploratory efforts to include investigations of other disease states or ailments that commonly affect US Virgin Islanders. (Medicine, n.d.)
Policy
The section on policy is meant to articulate and highlight existing policies within the territory that connect to food systems. Several policies support the development of food systems products, inclusion, food access and more. However, some policies may hinder or stop certain practices from being done. These policies will be addressed in each sector and tactic within the full assessment as well in regard to the impact on particular programming and projects.

Equity Policies

Feed the Hungry Act:

**Liability of food donors:**
Notwithstanding any other provision of law, no person or entity donating food to a nonprofit corporation, nonprofit organization or governmental entity, without charge, or at a charge sufficient only to cover the cost of handling such food, shall be liable for civil damages for any injury arising out of the condition of such food; unless at the time of the donation, the food donated was knowingly misbranded or adulterated, or was manufactured, processed, prepared, handled or stored in a grossly negligent manner (Office of the Code Revisor, Legislature of the Virgin Islands, 2019)

**Liability of food distributors and handlers:**
Notwithstanding any other provision of law, no person, nonprofit corporation, nonprofit organization or governmental entity, which distributes or serves food without charge or at a charge sufficient only to cover the cost of handling such food, shall be liable for civil damages for any injury arising out of the condition of such food, unless at the time of distribution or serving, the food is knowingly misbranded or adulterated, or the injury is the result of gross negligence, recklessness of intentional misconduct of the person, nonprofit corporation, nonprofit organization or governmental entity, or any person employed by or under the control of the person, nonprofit corporation, nonprofit organization or governmental entity (Office of the Code Revisor, Legislature of the Virgin Islands, 2019)

Opportunity Zones:
Governor Mapp has nominated 14 neighborhoods on St. Thomas and St. Croix as Qualified Opportunity Zones eligible for U.S. tax breaks under the massive tax bill passed by Congress last December, Government House.

The nominated zones, which are considered 14 “low income census tracts”, are subject to the approval of the U.S. Department of the Treasury. As part of the Tax Cuts and Jobs Act of 2017, Congress created a new incentive to encourage investment in low-income communities by allowing investors who reinvest the proceeds of capital gains in qualifying property or businesses located in designated Opportunity Zones to defer and reduce their capital gains taxes.

Under the new tax law, U.S. investors who invest in qualified property in an Opportunity Zone may defer U.S. capital gains tax on the new investment for up to 7 years; reduce the amount of those capital gains by as much as 15%; and pay zero federal capital gains tax on any appreciation in value of that new investment. By statute, Qualified Opportunity Zones are limited to designated “low-income communities” in States and Territories which meet certain criteria, according to Government House. The zones nominated Mr. Mapp include Christiansted and all of the western end of St. Croix, as well as most of the southern half of St. Thomas. (The Virgin Islands Consortium, 2018)

![Figure 15: St Croix Opportunity Zone](The Opportunity Zones Database, 2019)
Workforce Policies

“One of the goals of the previous administration was to move both the public and private sector labor force closer to a livable wage. The Governor signed Executive Order No. 483-2018 that authorizes starting base salaries for USVI public sector employees and critical positions in the Executive Branch. In October 2018, Executive Order No. 485-2018 granted a 3 percent increase to non-union classified and exempt employees. As it relates to the private sector, the Territory’s minimum wage rose to $10.50 in 2018.” (Bureau of Economic Research, 2019)

“In 2017, the Territory received funding from the U.S. Department of Interior, Office of Insular Affairs (OIA) to update the Territorial Consumer Price Index (CPI). The CPI is widely regarded as a critical economic indicator that a country utilizes to measure price movement and to adjust income, wages and salaries in contracts of employment. The government also uses the CPI in formulating fiscal and economic policy.” (Bureau of Economic Research, 2019)

Family Medical Leave Act:
Eligible Employees are entitled to a total of twelve (12) workweeks of leave for determined circumstances (Division of Personnel, Government of the United States Virgin Islands)

Minimum Wage:
The Wage Board may determine a minimum wage rate equal to not more than 50 percent of the average private, nonsupervisory, nonagricultural hourly wage as determined by the Wage Board for the previous November, rounded to the nearest multiple of five (5) cents, but at no time less than the effective Federal Minimum Wage. (Virgin Islands Code, 2019)

Livable Wage:
One of the goals of the previous administration was to move both the public and private sector labor force closer to a livable wage. The Governor signed Executive Order No. 483-2018 that authorizes starting base salaries for USVI public sector employees and critical positions in the Executive Branch. In October 2018, Executive Order No. 485-2018 granted a 3 percent increase to non-union classified and exempt employees. As it relates to the private sector, the Territory’s minimum wage rose to $10.50 in 2018. (Virgin Islands Code, 2019)

Housing Policies

Governance of Housing:
Department of Planning and Natural Resources- Division of Building permits (oversees building code, coastal zone management, historic preservation)

Insurance:
- Public housing is protected by loss casualty insurance
  - HUD requires adequate Fidelity Bond insurance coverage for VIHA
- Private rentals/ communities with casualty and property protect buildings
- Privately-owned real estate is not legally required to have insurance
**Funding:**
VIHFA: Virgin Islands Housing Finance Authority - And is funded by the US Department of Housing and Urban Development (HUD)
Funds the VIHA: Virgin Islands Housing Authority (receives 10% of HUSD annual budget) appx. $42 million annually to provide assistance to 4,000 households

Programs: Public Housing Program and Housing Choice Voucher Program

**Public Housing Agency:**
The PHA receives its operating subsidy for the public housing program from the Department of Housing and Urban Development. The PHA is not a federal department or agency. A public housing agency (PHA) is a governmental or public body, created and authorized by state or territory law to develop and operate housing and housing programs for low-income families. The PHA enters into an Annual Contributions Contract with HUD to administer the public housing program. The PHA must ensure compliance with federal laws, regulations and notices and must establish policy and procedures to clarify federal requirements and to ensure consistency in program operation. Public housing is funded by the federal government and administered by the Virgin Islands Housing Authority (Admissions and Continued Occupancy Policy For The Virgin Islands Housing Authority Public Housing Program, 2012)

**Acquisition or use of land for homesteads:**
Land for homesteads is declared to be a public use and may be acquired by the Government by condemnation proceedings through the exercise of the power of eminent domain, or by purchase, cession, transfer, exchange, lease, inheritance, or donation. No lands so acquired or held by the Government for such purpose shall be sold to any one applicant (Office of the Code Revisor, Legislature of the Virgin Islands)

**Homesteading/Housing of public farmland:**
The Commissioner shall allow the lease holder of government property leased to farmers to construct a wooden structure or to put a trailer upon the leased premises. The Commissioner may not allow any masonry or similar type structure to be constructed on Government-leased farmland. All structures must be totally removed when a lease is expired or terminated, at the discretion of the Commissioner (Office of the Code Revisor, Legislature of the Virgin Islands, 2019).

No leased farmland may consist of more than one-single family, non-masonry structure and one non-masonry storage/utility building, to every five-acre parcel. Any additional structure permitted may be at the discretion of the Commissioner. Farmers must notify and receive approval from the Commissioner, in writing, thirty days before erecting or establishing any structure on leased farmland.

Nothing in this section relieves the lease holder from obtaining the necessary building permits required by the Department of Planning and Natural Resources.

**Community Development Block Grant:**
“The US Department of Housing and Urban Development (HUD) awarded the Territory a $1.8 billion Community Development Block Grant as Disaster Recovery grants (CDBG-DR). The criteria in awarding the funding were based on addressing the housing, infrastructure, economic revitalization, and mitigation activities to protect the Territory from future disaster-related events. The Virgin Islands Housing Finance Authority (VIHFA) was designated as the lead grantee entity.”

“CDBG-DR tranche one funding agreement was signed and approved by HUD and the Governor of the US Virgin Islands in July 2018. Total funding in the CDBG-DR tranche one agreement was $242.6 million. Approximately, $72 million is allocated to needs of housing. The areas of housing include first-time homebuyer and housing construction assistance, homeowner rehabilitation and reconstruction, and supportive housing and sheltering programs. Economic Revitalization which includes workforce development, Tourism-related activities, and both sea and airports were budgeted for $33 million, while an estimated $125.5 million was available for the renovation and mitigation of the Territory’s infrastructure and electrical power systems. Economic Revitalization which includes workforce development, Tourism-related activities, and both sea and airports were budgeted for $33 million, while an estimated $125.5 million was available for the renovation and mitigation of the Territory’s infrastructure and electrical power systems.” (Bureau of Economic Research, 2019)
Public Works Policies

Governance of public works:
- Department of Public Works (DPW)
  - Administers land transportation, roads and buses as well as public infrastructure
- Virgin Islands Port Authority (VIPA)
  - Operates all airport and maritime facilities except one fuel port operated by WICO
  - Maintains shipping channels into territory

Water:
USVI has little natural water; majority use cisterns to collect rainwater and have access to water supply through WAPA

WAPA produces freshwater through reverse osmosis plant on STX and STT

Regulation + Funding:
- Department of Planning and Natural Resources (DPNR) – regulate WAPA under federal safe Drinking Water Act, also regulates cisterns, haulers and providers
- Public Service Commission (PSC) – regulate WAPA – regulates rates and represents WAPA customers
- Department of Health (DOH) – regulates bottled water resellers

Transportation Policies

Virgin Islands Ferry Boat Revolving Fund:
There is established as a separate and distinct, non-lapsing, revolving fund in the Treasury of the Virgin Islands, the Virgin Islands Ferry Boat Fund. The Commissioner of Finance shall administer the fund, and no monies deposited in the fund may be made available for expenditure and or disbursement for any other purposes except as provided in this section.

The Virgin Islands Ferry Boat Fund consists of:
- All grants, contributions, gifts and bequests;
- All interest accrued on monies in the Fund; and
- All non-federal sums appropriated to the Fund from time to time by the Legislature which remain available until expended.

Monies in the Fund must be used exclusively to expand and maintain the inter-island passenger ferry boat service within and between the islands of the Virgin Islands.

The Commissioner of Finance shall, on a quarterly basis submit to the Governor and the Legislature a detailed accounting of the disbursements from the fund and its unobligated balance.

Development Policies

Tourism:
“In 2018, the U.S. Department of Commerce, Economic Development Administration (EDA) also awarded grant funds to the Territory to develop the Tourism Master Plan Phase II and a Post-Disaster Resiliency Comprehensive Economic Development Strategy (CEDS). The planning strategy will focus on reconstruction and rebuilding towards resiliency, while diversifying the economy to promote a quick recovery and make it more hardened to withstand future impacts of economic, natural, and other disasters. The investment will also support economic diversification and economic stability. BER received award notification in September 2018.” (Bureau of Economic Research, 2019)

Tax Codes:

Section 934 Virgin Islands Tax Incentives:
Section 934 of the US Internal Revenue Code enables the Virgin Islands to reduce VI income tax liabilities attributable to VI income effectively connected with a VI trade or business. This applies generally to VI and US corporations and to VI resident individuals and partnerships. It also permits foreign ownership of a VI corporation to receive tax benefits granted by the VI Government. Most VI business entities receiving tax benefits from the EDC are organized under this section of the Internal Revenue Code. (SeaGlass Properties, 2019)
Section 936 Federal Income Tax Incentives:
Under Section 936 of the US Internal Revenue Code, US companies do not pay US income tax on dividends received from a US Virgin Islands subsidiary. These tax incentives include up to:

- A 90% exemption of local corporate income tax payments
- A 90% exemption of income taxes paid by resident stockholders on dividends received from the enterprise
- A 1% customs duty rate for raw materials and component parts (the standard rate is 6%)
- A 100% excise tax exemption for building materials, machinery, equipment, and supplies utilized in the construction, alteration, reconstruction, or extension of the physical plan or facilities. (Selected construction materials are also exempt from customs duties and excise taxes under Act 5015)
- 100% exemption from property tax and gross receipts tax;
- Withholding tax reduction from 10% to 4%, with an additional reduction to 2% for reinvestment of at least one half of otherwise repatriated dividends in eligible activities for at least five (5) years

The EDC tax exemptions are offered for 10-30 years, depending upon location of the business. To attract additional investment to the western end of St. Croix, EDC benefits have been extended to thirty years for the Frederiksted area, whereas Christiansted is twenty years, and St. Thomas has been limited to 10 years.

Health Policies

School Wellness Policies

Establishment of school health program, medical and dental tests:
The Commissioner of Education, with the collaboration of the Commissioner of Health as hereinafter provided, shall establish, maintain and administer a school health program in the Virgin Islands. Such program shall include; health services, health education and instruction, and healthful environment (Office of the Code Revisor, Legislature of the Virgin Islands, 2019)

Special nutrition programs:
In recognition of the demonstrated correlation between good nutrition and the capacity of children to develop and learn, and to more effectively meet the institutional needs of the children of the Virgin Islands, the Commissioner of Education is hereby authorized and directed to conduct special nutrition programs, including school lunches. Such programs shall be developed and conducted in full compliance with federal requirements for special nutrition programs. Nothing in this chapter shall be construed as authorizing programs which would disqualify the Virgin Islands from maximum federal funding of special nutrition programs under Title 42, Chapters 13 and 13A, United States Code, or any future amendments thereto.

Department of Education:
The Virgin Islands Department of Education is hereby designated the “State Agency” for administration of special nutrition programs within the meaning of that term under applicable federal law. The Commissioner of Education may consult with the Commissioner of Health, the Commissioner of Economic Development and Agriculture, administrators of charitable institutions, and the Commissioner of Human Services in administering the provisions of this chapter in order to maximize the effective delivery of services under the programs required by this chapter.

School Food Authority:
The Commissioner of Education, in consultation with the respective Insular Superintendents, shall designate within each district, a “school food authority” within the meaning of applicable federal law. Each “school food authority” shall be responsible for the administration of special nutrition programs within their respective districts (Office of the Code Revisor, Legislature of the Virgin Islands, 2019)

Agricultural Policies

Agriculture in the Classroom Program:
The Department of Education shall seek the assistance of other government agencies and private organizations that are involved in the area of agriculture education for development and implementation of an agriculture education curriculum guide composed of thematic units, lesson plans, and educational field trips that are aligned with the academic content standards of the Department of Education for grades Kindergarten through grade twelve.
The Department of Education shall arrange for at least one workshop per year for each school district to provide training to public school teachers in the following areas:

- how to use agriculture education to supplement and enhance the teacher’s existing classroom curriculum;
- the development of agricultural curriculum activities applicable to students from kindergarten through grade twelve; and
- how to properly conduct agricultural curriculum activities.

Public Schools:
Each public elementary school in the Territory shall develop a school garden or greenhouse on the school grounds for use as an agriculture education resource. The Department of Education shall develop, research, and coordinate the best available practices regarding appropriate curriculum for school garden programs in kindergarten through 6th grade, in consultation with education and agricultural experts (Office of the Code Revisor, Legislature of the Virgin Islands, 2019)

SNAP Fresh Food Farmers’ Market Technology Improvement Program:
The Department of Human Services and the Department of Agriculture shall implement a SNAP Fresh Food Access and Farmers’ Market Technology Improvement Program. The purpose of the Program is to increase access to fresh fruits and vegetables and other eligible food products, including quality meat, seafood and dairy, for Virgin Islands residents by allowing SNAP participants to utilize their EBT cards at farmers’ markets. The Department of Human Services and the Department of Agriculture shall solicit federal and territorial funding for the purpose of implementing the Program. (Office of the Code Revisor, Legislature of the Virgin Islands, 2019)

Promotion of the Ag Industry:
The Department of Agriculture in an effort to promote sustainable agriculture shall collaborate with the Department of Education and the Board of Education to incorporate agricultural science courses in the curriculum at all grade levels, including kindergarten, by:

- providing agriculture programs, through the school system;
- providing significant opportunities of vocational education in agriculture; and
- developing programs to counsel school dropouts and rehabilitation programs for juvenile delinquents, first-time criminal offenders, and those being released from the prison system by providing alternative programs, such as agricultural training camps and employment opportunities in the agricultural industry.

Department of Justice:
The Commissioner shall collaborate with the Department of Justice to create sustainable prison farms as a means of providing supplemental food to the prison and as an alternative means of rehabilitation in the prison system for the development of prisoners who are released into society.

University of Virgin Islands and Department of Education:
The Commissioner, in conjunction with the University of the Virgin Islands and the Department of Education, shall establish programs that further assists in the development of future agriculturists who will provide for the continued sustainable development of an agriculture industry, and provide adequate training in agricultural sciences to grant agriculturists certification.

The Commissioner shall:

- Conduct a program of incentives through a cost-sharing program;
- Develop a program for assisting in the marketing of local agricultural products;
- Maintain adequate livestock health services;
- Develop a program, in conjunction with the University of the Virgin Islands Co-operative Extension Service, the Department of Education, and Department of Labor to encourage the processing of local agricultural produce and products;
- Develop a program to assure a source of supply of forage and other resources needed for the livestock industry; and
- Develop a program to make water available to farmers during times of drought (Office of the Code Revisor, Legislature of the Virgin Islands, 2019)
Public Fish Markets:
All public fish markets in the United States Virgin Islands heretofore established under the jurisdiction of the Department of Agriculture are hereby transferred to and continued without interruption within the Department of Conservation and Cultural Affairs. The Commissioner of Conservation and Cultural Affairs is authorized to establish a schedule of reasonable fees for the use of the facilities and to issue appropriate rules and regulations in the manner provided by law to govern the use of the fish markets (Office of the Code Revisor, Legislature of the Virgin Islands, 2019).

Virgin Islands Fruit of Choice, Julie Mango:
In collaboration with the Agriculture Department and our local farmers, the University of the Virgin Islands shall host annual workshops and demonstrations on mango production and marketing.

The Department of Agriculture shall set aside acreage for mango development on St. Thomas, St. John and St. Croix to develop harvesting and production of factories of mangoes.

The Department of Agriculture shall establish and implement the Julie Mango in Every Yard Program to encourage private residents of the Virgin Islands to dedicate a portion of their land for at least one Julie Mango Tree.

Future dairy farms and milk plants:
All future construction or extensive alteration of milk houses, milking barns, stables, parlors, transfer stations, and milk plants regulated under this chapter must meet certain minimum specifications and requirements, which the department shall establish by rule (Office of the Code Revisor, Legislature of the Virgin Islands, 2019).

Meat Standards:
The standard for the inspection of live animals, carcasses and meat, and for judging their fitness for food and their disposal if infected shall be those prescribed by regulations issued by the Commissioner of Health (Office of the Code Revisor, Legislature of the Virgin Islands, 2019).

All meats or meat products stored, transported, offered for sale or sold in the Virgin Islands shall be subject to inspection and reinspection at any and all times by the Commissioner of Health. During transportation all meat and meat products shall be protected from insects, rodents, and other vermin, dust or other contamination. Meat markets, market stands, groceries and all other places in which meat and meat products are sold, offered for sale and stored shall conform to all of the requirements of sanitation as provided in regulations issued by the Commissioner of Health (Office of the Code Revisor, Legislature of the Virgin Islands, 2019).

Cultivation of Hemp:
The Virgin Islands Industrial Hemp Commission:

The Commission shall develop recommendations on industrial hemp legislation and recommendations and legislation on the establishment and operation of a paper mill by the Government and annually thereafter report the recommendations to the Governor and to the Legislature’s standing committee having jurisdiction over agricultural matters, with respect to industrial hemp policies and practices that will result in the proper, legal, growing, management, use, and marketing of the Territory’s potential industrial hemp industry. (Office of the Code Revisor, Legislature of the Virgin Islands, 2019)

Industrial hemp production: (Office of the Code Revisor, Legislature of the Virgin Islands, 2019)

Every licensee shall file with the Commissioner: documentation showing that the seeds planted are of a type and variety certified to contain no more than 0.3 percent tetrahydrocannabinol; and a copy of any contract to grow industrial hemp. Each licensee shall notify the Commissioner of the sale or distribution of any industrial hemp grown by the licensee, including, but not limited to the amount of industrial hemp sold at a given time.

The Commissioner and the University of the Virgin Islands shall promulgate regulations jointly for:
- Testing of the industrial hemp during growth to determine tetrahydrocannabinol levels;
- Supervision of the industrial hemp during its growth and harvest;
- Assessment of a fee that is commensurate with the costs of the Commissioner’s regulatory activities in licensing, testing and supervising industrial hemp production;
• Production and sale of industrial hemp which are consistent with the regulations of the United States Department of Justice, Drug Enforcement Administration for the production, distribution and sale of industrial hemp; and
• Any other regulations and procedures necessary to carry out the purposes of this subchapter. (Office of the Code Revisor, Legislature of the Virgin Islands, 2019)

**Environmental Policies**

**Blue Economy**
The Division of Economic Research of the Office of Management and Budget, the Virgin Islands Department of Planning and Natural Resources, and the Virgin Islands Economic Development Authority has enacted a plan to assist the Virgin Islands in “developing a sustainable blue economy” (Thirty Third Legislature of the Virgin Islands, 2020).

A Plan to assist USVI in blue economy through planning for must be submitted by May 2021 and include:

• Economic viability of blue economy
• Financial needs for implementation
• Direct and indirect opportunity results
• Steps for developing blue economy
• Assist in blue economy concept
• Assistance in federal funding to assist with implementation

**Zoning Codes:**
Establishment of Zoning Districts: The Virgin Islands, consisting of the Islands of St. Thomas, St. Croix and St. John and all other islands within the jurisdiction of the Virgin Islands, are divided into eighteen (18) districts (not all of which are found on each of the Islands.) (Office of the Code Revisor, Legislature of the Virgin Islands, 2019)

1. A-1 Agricultural District
2. A-2 Agricultural District
3. R-1 Residence—Low Density
4. R-2 Residence—Low Density
5. R-3 Residence—Medium Density
6. R-4 Residence—Medium Density
7. R-5 Residence—High Density
8. B-1 Business—Central Business District
10. B-3 Business—Scattered
11. B-4 Business—Residential Areas
12. C Commercial
13. I-1 Industry—Heavy
15. W-1 Waterfront—Pleasure
16. W-2 Waterfront—Commercial—Industrial
17. P Public
18. S Special

**Environmental Protection Program:**
The Virgin Islands Conservation District shall prepare and adopt an Environmental Protection Program in collaboration with the Virgin Islands Office of Planning, the Departments of Conservation and Cultural Affairs, Agriculture, Public Works, and Health. The provisions of the Environmental Protection Program and any amendments thereto shall be filed and published in the same manner and subject to the same conditions as administrative regulations pursuant to chapter 35 of Title 3 of this Code. Thereafter, such program shall have the force and effect of law.

The Environmental Protection Program shall be in the form of rules and regulations designed to prevent improper development of land and harmful environment changes and in accordance with the declaration of policy as stated in section 531 of this chapter. This program shall
include comprehensive erosion and sediment control measures applicable to both public and private developments including the construction and maintenance of streets and roads: (Office of the Code Revisor, Legislature of the Virgin Islands, 2019)

**Coral-Damaging Sunscreens:**
On June 25, lawmakers in the U.S. Virgin Islands voted to ban common chemical sunscreen ingredients that can damage coral reefs. With the ban, the U.S. Virgin Islands joins a handful of other jurisdictions around the world pioneering action on harmful sunscreens. It will be the first such ban to take effect in the United States, followed by Hawaii and Key West, Florida, and among the first internationally. (Gies, 2019)

**Resource Recovery:**
It is the intent of the Government to encourage, wherever practicable, the salvage, reuse, recovery or recycling of wastes; provided, that such activities, or the operation of facilities for such purposes, including junkyards and storage facilities, shall only be allowed under joint permit from the Department of Planning and Natural Resources and the Waste Management Authority, which permit shall be granted only to persons able to demonstrate the ability to conduct such activities within the provisions and restrictions of this chapter. The Waste Management Authority shall promulgate rules and regulations for the conduct of such operations or facilities. Salvage of waste at any storage or disposal site shall be allowed only with the permission of the owner or operator of such site (Office of the Code Revisor, Legislature of the Virgin Islands, 2019)

**Plastic Grocery Bag Ban:**
U.S. Virgin Islands Legislature passed a bill banning these unnecessary bags from the Territory. The vote was unanimous. In addition to leadership by the bill’s sponsor, Sen. Nereida Rivera-O’Reilly, thanks goes to the Island Green Living Association’s energetic stewardship of this effort. Under Island Green’s President Harith Wickrema’s leadership, the organization helped to develop bill language plus provided testimony for this cause (including our own Doug White, an Island Green founder and officer). (Plastic Free St. John, 2016)

**Plastic Straw Ban:**
An Act amending title 29 Virgin Islands Code, chapter 8 to extend the ban on plastic bags to include disposable, plastic drinking straws, and plastic tubular stirrers and to allow the sale of reusable drinking straws. (Legislature of the Virgin Islands, 2018)

**Redemption of recyclable materials; redemption centers:**
There is hereby established, under the direction and control of the Waste Management Authority, a program to reduce litter by encouraging the collection for recycling of certain containers and other recyclable materials in the Territory through a mechanism that would financially compensate persons for redeeming such materials and foster the establishment of redemption centers for the collection of such material to be in turn delivered to resource recovery facilities.

(b) Every beverage container, paper product or other material which is offered for sale in the Territory and which is designated by the Waste Management Authority as recyclable and for which redemption centers have been established in the Territory shall have a minimum redemption value as set by the Waste Management Authority.

(c) The public may return such recyclable materials to appropriate redemption centers and receive therefor, a payment of not less than the minimum redemption value, as set by the Waste Management Authority, from the redemption center. (Office of the Code Revisor, Legislature of the Virgin Islands, 2019)

**Installation of solar equipment in new developments**
In the construction of new developments or substantially modified developments after the effective date of this subchapter, the developer shall use energy-efficient solar systems or heat pump water heaters for providing not less than 70% of water heating, unless the Commissioner of the Department determines that the use of such a system is not cost-effective or interferes or conflicts with the use of the building.

The Director shall use the American Recovery and Reinvestment Act funding that is designated for rebates for the Virgin Islands, first for solar water heating system rebates for residences and government buildings.
In issuing its building, construction, or development-related permits, the Department shall ensure that permittees comply with the requirements of subsection (a) (Office of the Code Revisor, Legislature of the Virgin Islands, 2019)

**Government:**

**The organization of the Government of the Virgin Islands:**

**Executive Branch:**
The executive power of the Virgin Islands is vested in the Governor who, together with the Lieutenant Governor, is elected by qualified Virgin Islands voters for a four-year term. The Governor is limited to two consecutive terms. (USVI Economic Development Authority, 2019)

**Legislative Branch:**
The legislative power of the Virgin Islands is vested in a unicameral legislature consisting of 15 senators: seven from St. Croix, seven from St. Thomas, and one Senator-at-Large who must be a resident of St. John. Senatorial elections are held every two years. (USVI Economic Development Authority, 2019)

**Judicial Branch:**
The judicial power of the Virgin Islands is vested in District Court of the Virgin Islands, Supreme Court and Superior Court of the Virgin Islands. (USVI Economic Development Authority, 2019)

The District Court of the Virgin Islands functions as a United States Federal district court in all causes arising under the Constitution, treaties, and laws of the United States. Appeals from the decisions of the District Court of the Virgin Islands are made to the United States Court of Appeals for the Third Circuit which is based in Philadelphia, Pennsylvania.

The Supreme Court of the Virgin Islands functions as an appellate court for appeals from the decisions of the Superior Court.

**Delegate to Congress:**
The Virgin Islands are represented in the United States House of Representatives by a non-voting delegate elected by Virgin Islands voters. The delegate serves a two-year term and can sit and vote in committee. (USVI Economic Development Authority, 2019)

**Tax System:**
The United States Internal Revenue Code applies in the Virgin Islands under a "mirror system" whereby the "Virgin Islands" is substituted for the "United States" wherever necessary to give the Internal Revenue Code the proper effect in the U.S. Virgin Islands. The Virgin Islands Bureau of Internal Revenue is responsible for the administration of the internal revenue laws of the U.S. Virgin Islands. The U.S. Virgin Islands tax system includes income, container, gross receipts, excise, highway user’s, hotel room, real property, entertainment, franchise, fuel, gift, inheritance, personal use, tire, and stamp taxes. Other fees and license requirements are also in effect for such services as registering vehicles, obtaining driver’s licenses, and obtaining business licenses. (USVI Economic Development Authority, 2019)
FOOD SYSTEM SECTORS

The food systems section describes each food system sector and identifies tactics that exist within the territory. Each sector will begin with analysis of opportunities and needs and then will review each tactic in depth for existing conditions and potential opportunities. If priority projects have been identified within the sector, those will also be reviewed and discussed within the appropriate sector.

Like the asset area section, this is meant to be used in future applications for funding, partnerships, and general understanding of the territory. This may also be used as a research directory in which it can be updated every few years with more current information.

There are three primary areas of need that cut across all food system sectors: data, trust and resilience. Data on local businesses, environment and general community indicators are lacking. The most recent agriculture census available was conducted in 2007. While there is much research being conducted within the territory, many of the reports are not shared publicly and thus not available. This includes additional support for businesses to supply and share appropriate record-keeping, as well as territory wide data development for key indicators. Efforts to house and share existing research would support continued projects and collaborations.

Trust within the territory is a large concern. There is a perceived lack of transparency and understanding of rules and regulations of the government (both federal and local). Trust between organizations is hindered due to competition of funds and general lack of capacity within organizational structures. Efforts to build leadership capacity, connectivity, and general networking and support between businesses, organizations and the government may be a beneficial next step.

Developing strategies for resilience is needed within all sectors, as well as a plan that connects farmers and fishers, product development, markets and retailers, and resource management. Determining needs and approaches for collective results that promote territory resilience regarding community economy, social equity, and environmental sustainability.
Production

This section provides an overview of community projects, programs, businesses that involve the science, art, or occupation of cultivating land, raising livestock, hunting, fishing, foraging or farming.

There is an overwhelmingly high import rate within the U.S. Virgin Islands, despite the appropriate climate for year-round production. Various reports state import rates ranging from 95%-99% of food needs. While this may vary based on the product being imported, there are options to decrease this rate of import by supporting local farms that are producing or harvesting meat and seafood, specialty crops such as fruits, vegetables and nuts, or other types of commodities like sugar cane.

While there are efforts in place through USVI Extension and Department of Agriculture (DOA) to continue to expand and enhance local grower capacity and cooperation, there has not been consistent support and buy-in from both farmers and markets. Opportunities for continued market development and producer education around record-keeping, sales, production best practices, etc. are needed. Input Sessions hosted by FEMA in the fall of 2019 also emphasized the need for additional the opportunity for access to land for both community gardens and farmland, in addition to opportunities for consumers to have increased access to local food.

There is also a need to continue to raise awareness and educate all generations about agriculture practices, technology, and developing a new generation of farmers and fishers within the territory. Efforts have started for Future Farmers of America (FFA) and 4H, as well as community and school gardens and mentorship for new and beginning farmers. It may be beneficial to bolster these efforts to inform youth and other generations about the benefits and job opportunities within the production sector. Another way to continue to improve the awareness of local products grown could be through the development of a local directory for farms, fishers, and markets throughout the territory.

With the recent hurricanes and seasonal climate shifts, there is a need for farmers to create disaster plans for their individual farms as well as community-based responses for food access and redevelopment following storms. The disaster preparedness checklist for farmers will be released as an appendix and separate document from this assessment. The checklist was informed based on responses from farmers and fishers within focus groups and interviews the summer of 2018 as well as case studies and literature from other disaster impacted regions.

The agricultural industry has declined in the USVI over the century. However, there is still crop land available and potential to continue to explore new crops that may be appropriate with climate shifts. Products may include root crops, gourds, bananas and mangos, herbs, lemongrass, moringa, noni, breadfruit, papaya, sugar cane, etc. While a few farmers are producing these crops, larger scale production may allow for value-added processing opportunities and the development of a more sustainable market. Future feasibility studies are needed to inform crop development. In addition, as a means of preparing and recovering from storms, developing food storage options for large quantities of product may be beneficial.

Additional areas of need in the production sector include the continuation of relationship development between farmers, fishers, Extension, Department of Agriculture and non-profits. While there is a lot of work going on, there are duplicating efforts and lack of transparency between organizations. With coordinated support, resources may be able to stretch further and have a bigger impact on community, rather than organizations offering similar services.

Similarly, there is a lack of trust between farmers and fishers and organizations such as the DOA, USVI Extension and FEMA. Many farmers stated that they do not believe that the DOA views production and the agricultural sector as an economically viable business. DOA and USVI Extension may be able to support and hold farmers and fishers accountable for record keeping, business development and resilience by providing additional workshops and programs on business development options. Additionally, there needs to be clear understanding of roles of DOA and VI Extension as it relates to financial and equipment support. Several farmers view the DOA and VI Extension as public organizations that are required to provide equipment, water, soil, etc., while other farmers operate on their own without as much reliance on external support. It appears that USVI is offering a service-based approach to the production sector, vs. a business-based approach in supporting sustainable and profitable business practices for all farmers and fishers.
With DOA support, additional data may be available, which would allow for benchmarking of not only individual businesses, but, overall agricultural sector growth. For example, in order to farm, it is required to become licensed. When farmers renew that license, they fill out a schedule F form. While there are records of these businesses within DOA, they are not public record. This would provide additional data and support for feasibility and economic impact in the future. Additionally, not all the farmers are consistent in providing information. Developing a consistent process may promote more accountability and professionalism within the production arena. However, it is understood that this would be an undertaking and take time to develop, as many farmers are mistrusting and don’t see the need to share their business records.

Realizing that business skills, record keeping, production best practices are needed, it is also critical to mention that many of these programs have been offered through DOA and USVI Extension. Both organizations shared that there is low attendance, however, people continue to ask for assistance. A potential strategy may include the development of train-the-trainers for farmers and fishers to learn the best practices, and then they would offer the training to their peers. This could also be done with additional local food leaders and advocates. This would allow for additional technical assistance to occur throughout the territory, instead of only relying on two organizations.

Last, communication support and general directory of resources available to farmers and fishers may be a useful tool to develop. Communication is integral to resilient systems and includes both internal organizational communication as well as community-based networks. Discussions of a directory on farmers, practices, markets that support local, as well as local food policies were identified as needs.
Residential Gardens
Backyard gardening allows for the integration of food plants with ornamental plants for an aesthetic setting. By incorporating both types of plants, a garden becomes productive as well as beautiful; leading to added health benefits, stress reduction, and personal financial stability. With the incorporation of fruits, vegetables, herbs and beautiful perennials and annuals, your space is sure to have practical and flavorful results.

There are numerous types of gardening that can be used at any scale from the backyard to city streets. Gardening is a great way to introduce healthy, fresh plants into family lifestyle at home as well as grow food for those in need.

Existing gardens: Many residents have gardens and access to edible fruit trees or herbs within their neighborhoods and boroughs. Several grow culturally relevant products and use within their homes or trade and share with neighbors and friends.

Garden opportunities: Potential increase in education of best practices for having edible products within yards may be an option. USVI Extension has publications for gardening and local crop uses as well as health aspects of fruits, vegetables and herbs. During the FEMA input sessions, there were discussions of “planting parties as a way to increase access to fresh products and increase the amount of food grown on the island.

Community Discussion:
A series of public input sessions were hosted by FEMA in the fall of 2019, from both consumer surveys as well as public voting, we heard from numerous individuals and families about their efforts to grow local at home. Many spoke of growing herbs, fruit trees, and vegetables. A few mentioned fishing for personal use as well.

Interviews:
St. John is looking into home gardens into conjunction with home rebuilding projects (Foundation S. J., 2019)

...island does not have enough area for food safe agriculture; have been trying to grow food in hanging boxes at home (Resident, 2019)

70% of what we eat at home comes from garden (Eron, 2019)

The Every-Yard Program and VI Fruit of Choice- Julie Mango offer tax breaks for those that grow it, and it can be grown on any size of property (Hodge, 2019)

Everyone has to eat, and they take food for granted- and they don’t realize the critical importance of food (Collingwood, 2019)

...fresh and healthy food could potentially make people healthier (Colasacco, Island Health and Wellness, 2019)

Importing food is decreasing the quality-- 99% of food is imported (We Grow Food, 2019)

Environment
Residential gardens can support a wide range of ecological functions including wildlife habitat, stormwater infiltration, carbon sequestration, microclimate regulation, nutrient cycling, and conservation of biodiversity. The Virgin Islands Territory is located in a tropical climate that allows for many varieties of fruit and vegetables to grow year-round. Many family households have edible foods and provide food for their families from the own backyards. Additionally, the environment allows for
residential properties to have small homesteads and hobby farms. This creates a unique network of food availability throughout the territory.

**Economy**

Edible residential gardens contribute to income generation, improved livelihoods, and household economic welfare as well as promote entrepreneurship and rural development. Home gardens can contribute to household economic well-being through the consumption of home-grown food products and the availability of more disposable income that can be used for other domestic purposes.

Many of the farmers in the territory started, or still have gardens and hobby farms on property. Residential property can be viewed as an incubator of sorts to trial out markets.

**Education**

Master Gardener programs are offered through USVI Extension services and are available to residents who would like to learn new skills and growing practices. Additional edible documents exist to highlight the breadth of edible crops that can grow within the territory. Young children in particular who regularly eat homegrown fruits and vegetables eat more than twice as much of those healthy foods than kids who seldom get fresh-from-the-garden produce on their plates. When children are involved with growing and cooking food, it improves their diet. (Preidt, 2007; Wise, 2014)

Home Demonstration Garden (Urban Gardening): University of Virgin Islands Cooperative Extension Services, “a complete home demonstration garden illustrating gardening techniques, use of native ornamentals, fruit trees and landscaping techniques.”

**Wellness**

Safe food, exercise, and gardens are shown to assist with stress reduction; children who eat homegrown fruits and vegetables eat twice the amount of these foods than kids who seldom get fresh fruits and vegetables. Food items from home gardens add substantially to the family energy and nutritive requirements on a continual basis. Through gardening, households can have better access to a diversity of plant and animal food items that lead to an overall increase in dietary intake and boost the bioavailability and absorption of essential nutrients, ultimately leading to a more balanced and healthy diet. (The American Society of Landscape Architects, 2018; Clayton, 2007)

**Policy**

The Virgin Islands Fruit of Choice, Julie Mango policy supports the growth of Mango fruit trees on properties throughout the territory. The Department of Agriculture shall establish and implement the Julie Mango in Every Yard Program to encourage private residents of the Virgin Islands to dedicate a portion of their land for at least one Julie Mango Tree.

The program established by the Department of Agriculture must provide financial incentive to Virgin Islands residents who grow Julie Mango trees in their yard through an established purchasing program that buys from each owner a percentage of their Julie mango tree harvest.

The Department of Tourism shall assist the Department of Agriculture in promoting the Julie Mango in Every Yard Program locally and nationally to encourage productions by residents who live in the territory and owners of land in the Virgin Islands who live abroad. (Office of the Code Revisor, Legislature of the Virgin Islands, 2019)

**Equity**

Multiple social benefits of home gardens exist for people of all ages, including enhanced food and nutritional security in many socio-economic and political situations, improved family health and human capacity, empowerment, social justice and equity, and the preservation of indigenous knowledge and culture. (Galhena, Freed, & Maredia, 2013)
Community Gardens

Community Gardens create community and neighborhood capital. A community garden is a public space that can be a cross section between public and private entities open to all, or for identified users. These spaces offer opportunities for families to grow their own food leading to financial stability and healthy, fresh food options. Gardening has been shown to reduce stress and promote additional exercise through leisure activity.

Community gardens can be created in a vast amount of spaces and environments: rural and urban settings, vacant lots, pocket parks, and local business plots. Similarly, they may also exist at organizations or corporations as well such as businesses, institutions, or churches. This works well when businesses have large amounts of land that is underutilized.

Additionally, there are opportunities to create community orchards which incorporate various forms of fruit trees and shrubs located in a public space. Many times may be considered a food forest with incorporation of various layers of herbs, food crops, perennials and fruit trees.

Existing gardens:
Fredriksted, St. Croix Community Garden

Garden opportunities:
There are current efforts to start or enhance community garden programs in both St. Croix and St. John. St. John’s Love City Strong program and collaboration with Coral Bay partners, have sought out space adjacent to the DOA property. To ensure proper development of future sites, collaborations with government in regard to zoning regulations as well as use options will be needed. Also, discussion on appropriate programming for community gardens is suggested, below are potential questions to be considered:

- Will there be plots for rent?
- Is it an open space free to the public?
- Who owns and manages the site?
- Will product be sold or donated?

Additionally, throughout the territory there are edible products within parks, along roadsides, etc., there may be opportunities to better highlight and share which products are edible, seasonality, and the ability to harvest. For example, mango and noni berries are prevalent during certain times of the year and are found throughout the territory. A wild harvesting or public harvesting program could be adopted with identification of where produce can be found.

There are also several local and state parks within the territory that may be appropriate sites for creating new community gardens if there is interest from the community. Parks have been a traditional partner on the mainland US for community garden development.

Community Discussion:

Based on public input sessions, community gardens are seen as an opportunity to both have access to land for family food production, but also as a means to try out different techniques for producing food. Access to land for community gardens was one of the top 5 priorities throughout the territory. Additionally, residents throughout the territory identified access to fresh fruits and vegetables as their number one priority. Community gardens may be an opportunity to support this.

Interviews:

Plan to work with senior citizens/retirees to develop a master gardener program and get them certified to support and engage youth in the schools as well as community gardens (Collingwood, 2019)

Interested in community gardens as a community garden recovery strategy, re-connecting with our community (Farmer, St. Croix, 2018)

Need to understand land use regulations, zoning issues, etc. (St John Resident, 2019)
Environment

Community gardens have been shown to abate criminal activity; this can be seen through promotion of community gardens in underserved areas and vacant properties. Similar community gardens have been shown to increase the amount of food people eat from their own gardens, therefore decreasing the need to spend dollars in the store. When a participant gets involved in taking responsibility to create something, they are less likely to waste it due to all the time it went into producing it. Community gardens allows individuals to grow their own food, while also eliminating the amount of waste produced. On top of this, community gardens help decrease the amount of greenhouse gases by decreasing the amount of input transportations.

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Land</td>
<td>11.5%</td>
</tr>
<tr>
<td>Arable Land</td>
<td>2.9%</td>
</tr>
<tr>
<td>Permanent Crops</td>
<td>2.9%</td>
</tr>
<tr>
<td>Permanent Pasture</td>
<td>5.7%</td>
</tr>
<tr>
<td>Forest</td>
<td>57.4%</td>
</tr>
<tr>
<td>Other</td>
<td>31.1%</td>
</tr>
</tbody>
</table>

Table 36: Virgin Island Land Use: (CIA World Factbook, 2018)

With much of the land use in agriculture or forest, there are opportunities to conserve agriculture property. The Trust for Public Land - VI projects are listed below (The Trust for Public Land, 2019)

1. Castle Nugent: 1400 acre Castle Nugent Farms (largest privately held property) -STX
   a. Cattle ranch raising- Senepol cattle
2. Coastal and Historic Land Protection- STJ/ STX/ STT
3. Estate Grange- STX
   a. National historic site
4. Estate Maho Bay- STJ
   a. September 2007- purchased 419 acre site
5. Hawksnest Bay- STJ
   a. 1999 protected Gibney Beach in Hawksnest Bay- ranked one of the top 10 beautiful beaches in the world
6. Roosevelt Park – STT
   a. Restore historic Franklin D. Roosevelt Park with private philanthropist
7. Salt River Bay National Historical Park and Ecological Preserve- STX
   a. 120 acres protected

This could include the use of National Parks and other landmarks as areas to incorporate community garden or edible landscape opportunities.

Figure 17: National Parks Impact: (NATIONAL PARK SERVICE, 2019)
**Economy**

Community gardens allow for members of an area to save money by being able to grow their own food instead of buying elsewhere. Financials is a big part of community gardens because the people using them are either food insecure, homeless, or have low income. On top of this, the heavy output of the plants from community gardens allows for increase of food security. (Withers, 2010)

“The Enterprise Zone Commission (EZC) is responsible for the revitalization of designated blighted and severely distressed areas in the U.S. Virgin Islands that were once social and economically vibrant communities. The EZC provides tax incentives and economic development benefits and helps to reduce fiscal and regulatory constraints that hinder economic growth. In addition, the EZC encourages collaboration between public, private, and non-profit entities in support of economic growth and development.” (U.S. Virgin Islands Economic Development Authority, 2018)

**Enterprise Zone Commission Outputs and Projections**

<table>
<thead>
<tr>
<th>2-Key Performance Indicators (KPI)</th>
<th>Actual FY 17</th>
<th>Target FY 18</th>
<th>Actual FY 2018 (as of 3/31/18)</th>
<th>Planned FY 19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of collaborative events held</td>
<td>5</td>
<td>12</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Number of rehabilitated properties completed</td>
<td>3</td>
<td>10</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Number of properties boarded up (for safety concerns)</td>
<td>1</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Number of public meetings held towards revitalization</td>
<td>7</td>
<td>3</td>
<td>4</td>
<td>8</td>
</tr>
</tbody>
</table>

Table 37: Enterprise Zone Commission Outputs and Projections (U.S. Virgin Islands Economic Development Authority, 2018)

**Education**

Community gardens are an education program for all ages, connecting youth to elders. Through the participation of community gardens, participants learn leadership, work ethic, stewardship, and civic engagement. They also promote and demonstrate good public health through the gardens, in which they can put on workshops that initiates healthy lifestyles in which the rest of the community can partake in.

Community gardens allows participants to learn stewardship and civic engagement. Community gardens allows for opportunities for members in a community to be able to learn multiple different topics; Some of the skill opportunities include: implementation, cultural competency, community organizing, program planning, and leadership (Twiss, et al., 2003)

**Master Gardeners**

- Public botanical garden, part of the American Horticulture Society Reciprocal Admissions Program (membership program)
- Infoatthegarden@gmail.com

**Community Gardens**

- Coral Bay Community Garden Project (Urge the VI Government to Bring the Coral Bay Community Gardens Project to Life, 2017)
- Startup project; not currently used for production
- Frederiksted Community Garden (Frederiksted Community Garden)
  - Allows residents in community place to grow their own food in a safe space; founded and organized through CHANT program

**Wellness**

Community gardens allow members of community to partake increasing mental and physical health, while producing fresh food. Participation of community garden can allow one to relieve stress that they may have through the work of their hands and watch their hard work be developed through the plants. Community gardens also allows individuals to take the fresh produce directly home with them, while incorporating the fresh food into their diets; creating a healthy lifestyle. Community gardens allow for residents in area to have access to fresh produce; Participants in growing produce can experience many health benefits that include: increase physical activity, reduction of mental stress, and individual skills (ISU Community Design Lab, 2015)
**Policy**

Community gardens can be pricey when first start, although with the help of local government it can be easy to be implemented. Different implementation tactics include creating comprehensive plan, community garden committee, non-profit organizations, municipal program, and zoning. They also can help serve as a liaison between the community and local government by bringing together everyone.

Different implementation tactics include creating comprehensive plan, community garden committee, non-profit organizations, municipal program, and zoning. They also can help serve as a liaison between the community and local government by bringing together everyone. (University of California Extension)

Policies are important to understand for business opportunities. Many different local, territory and federal policies impact the USVI Territory. Locally, zoning districts may impact the ability to have agricultural property in certain areas of the islands.

**Establishment of Zoning Districts:**

The Virgin Islands, consisting of the Islands of St. Thomas, St. Croix and St. John and all other islands within the jurisdiction of the Virgin Islands, are divided into eighteen (18) districts (not all of which are found on each of the Islands.)

(Office of the Code Revisor, Legislature of the Virgin Islands, 2019)

- A-1 Agricultural District
- A-2 Agricultural District
- R-1 Residence—Low Density
- R-2 Residence—Low Density
- R-3 Residence—Medium Density
- R-4 Residence—Medium Density
- R-5 Residence—High Density
- B-1 Business—Central Business District
- B-2 Business—Secondary
- 10. B-3 Business—Scattered
- 11. B-4 Business—Residential Areas
- 12. C Commercial
- 13. I-1 Industry—Heavy
- 15. W-1 Waterfront—Pleasure
- 16. W-2 Waterfront—Commercial—Industrial
- 17. P Public
- 18. S Special

**Equity**

Community gardens allow for increase food security and increasing finances for participants as well as bring together multi-cultures to create a healthy community (Withers, 2010). They can bring wide range of cultures together while hosting a safe area for children and families. They also help decrease the amount of crime in youth. Crime starts upon youth due to not being able to have food and causing instability. Community gardens act as a solution to decreasing youth violence by providing fresh produce with free cost upon participation.
Farm to School: School Gardens

School Gardens create unique learning opportunities for both students and teachers. Gardening can connect multiple disciplines: Math, Science, English, and Nutrition. It can be used to teach children how to sustain themselves, as well as care and respect the earth. School gardens foster growth and knowledge about where food comes from and nourishes healthy living habits. School gardens can be incorporated as Community Garden spaces and provide inter-generational and cross-cultural learning opportunities. These spaces create aesthetically pleasing ways to learn about the environment, how to grow food, and create social connections and common ground. School gardens show children that they are a part of something bigger in their community and school system. This pride has the chance to grow in all ages from toddlers to high school students.

Existing Gardens:

St. John Gifft Hill School + EARTH Program
St Thomas School Garden in collaboration with EARTH
St. Croix has a few schools that partner with the DOA and DOE Farm to School programs

School garden opportunities:

Capacity for schools gardens is dependent on individual school needs. Many schools have different capacity for school resources, land or space allocations, as well as administrative and parent support. Opportunities to increase school garden development include partnerships with existing organizations and farmers that are interested in promoting youth agricultural development. This may include programs such as 4H and FFA, as well as farmer mentorship on grounds. There have been shown successes of school vegetable gardens, as well as chickens being housed within school throughout the territory. It is critical to have both teacher, student, and family support for the continued capacity to evolve the programs both during the school year and during off months.

School gardens are typically not intended to be used as a procurement strategy for school breakfast and lunch programs, however, are a great tool for incorporating local products into snack options and new curricula opportunities. Students can get involved through standard education skills as well as in aspects of family studies, art, and general communication and listening skills.

Community Discussion:

Educational opportunities for students to learn about farming and culturally relevant foods were mentioned throughout community input sessions as well as within interviews. While there are programs currently being offered through Department of Education and Department of Agriculture, additional school education opportunities for understanding farming techniques, where food comes from, and how to prepare culturally relevant foods may be appropriate.

Interviews:

Need to build back education opportunities in schools (Hendricks, Department of Agriculture, 2019)

School gardens allow us to teach students where their food comes from and how it is grown (Minner, 2019)

“JFLI- John’s Folly STJ- work with 20 youth, ages 7-14 who want to learn more about food production and water distribution”
Environment
Following Hurricane Maria and Irma many schools closed either permanently or for a short period of time. The infrastructure of the school system directly impacts children’s ability to learn and participate in all activities.

<table>
<thead>
<tr>
<th>Type</th>
<th>Pre (SY2015-2016)</th>
<th>Post (SY2018-2019)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
<td>31</td>
<td>25</td>
</tr>
<tr>
<td>Private/Parochial</td>
<td>28</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Figure 18: Total Number of Schools In-Session Pre and Post Hurricane: (Caribbean Exploratory Research Center, 2019)

Many schools had long-term school closures (shown below)

<table>
<thead>
<tr>
<th>District</th>
<th>Campus</th>
</tr>
</thead>
<tbody>
<tr>
<td>St. Croix</td>
<td>Pearl B. Larsen Elementary School</td>
</tr>
<tr>
<td></td>
<td>Lew Muckle Elementary School</td>
</tr>
<tr>
<td></td>
<td>Alfredo Andrews Elementary School</td>
</tr>
<tr>
<td></td>
<td>Eulalie Rivera Elementary School</td>
</tr>
<tr>
<td></td>
<td>Alexander Henderson Elementary School</td>
</tr>
<tr>
<td></td>
<td>Elena Christian Jr. High School</td>
</tr>
<tr>
<td></td>
<td>John Woodson Jr. High School</td>
</tr>
<tr>
<td></td>
<td>Arthur Richards Jr. High School</td>
</tr>
<tr>
<td>St. Thomas-St. John</td>
<td>Guy Benjamin Community Center</td>
</tr>
<tr>
<td></td>
<td>E. Benjamin Oliver Elementary School</td>
</tr>
<tr>
<td></td>
<td>Addelita Cancryn Jr. High School</td>
</tr>
<tr>
<td></td>
<td>Gladys Abraham Elementary School</td>
</tr>
</tbody>
</table>

Figure 19: Long-term School Closures, Post Hurricanes: (Task Force Advisory Committee, 2018)

St. Croix School District

Figure 20: St. Croix | Map generated by Bailey Hanson, Iowa State University Extension and Outreach (Open Street Map)

Schools in St. Croix School District, located on St. Croix:

- Addelita Cancryn Junior High School
- Alexander Henderson Elementary School
- Alfredo Andrews Elementary School
- Arthur A. Richards Junior High School
- Charles H. Emanuel Elementary School
- Claude O. Markoe Elementary School
- Elena L. Christian Junior High School
- Eulalie Rivera Elementary School
- Evelyn M. Williams Elementary School
- John H. Woodson Junior high School
- Juanita Gardine Elementary School
- Lew Muckle Elementary School
- Pearl B. Larsen Elementary School
- Ricardo Richards Elementary School
- St. Croix Central High School
- St. Croix Educational Complex High School
St. Thomas | St. John School District

Figure 21: St. Thomas | Map generated by Bailey Hanson, Iowa State University Extension and Outreach (Open Street Map)

Schools in St. Thomas | St. John school district, located on St. Thomas:

- All Saints Cathedral School
- Antilles School
- Bertha C. Boshulte Junior High School
- Charlotte Amalie High School
- Church of God Academy
- Emanuel Benjamin Oliver Elementary School
- Edith Williams Alternative Academy
- Gladys A. Abraham Elementary School
- Ivanna Eudora Kean High School
- Jane E. Tuitt Elementary School
- Joseph Gomez Elementary School
- Joseph Sibilly Elementary School
- Leonard Dober Elementary School
- Lockhart Elementary School
- Saints Peter and Paul School
- Seventh Day Adventist School
- Ulla F Muller Elementary School
- Virgin Islands Montessori School and International Academy
- Yvonne E. Milliner-Bowsky Elementary School

St. Thomas | St. John School District

Figure 22: St. John | Map generated by Bailey Hanson, Iowa State University Extension and Outreach (Open Street Map)

Schools in St. Thomas | St. John school district, located on St. John:

- Memorial Moravian School
- Gifft Hill School
- St. John Christian Academy
- Julius E. Sprauve Elementary School
- Horace Mann School
While the ability for schools to rebuild is still a needed element for the territory, there may be opportunities to consider school gardens in these rebuilding activities. School gardens provide direct contact with nature. Through this contact, students learn their talents and interests and how to observe natural phenomenon. Currently, there is a wide disconnect between today’s children and their food. School gardens minimize the gap as children become more environmentally literate and develop a relationship with nature. The Montessori School philosophy promotes science education through interaction with nature.

**Economy**

FFA and garden programs don’t receive much funding support, but there are project collaborations that exist with Department of Agriculture and Economic Development Authority that incorporate school gardens. There are potentials to incorporate agriculture curriculum in Jr. High and High Schools; Department of Agriculture is currently looking into existing best practices.

Public schools provide school lunch programs, and many also may include breakfast. This can be supported through federal reimbursements through USDA, offered to ensure students are provided meals. Schools receive subsidies for meals served if they meet federal requirements for each program. This is based off the federal poverty levels. For breakfast programs, families with children in the school must fall between the 130 and 185% of poverty level to received reduced-price meals. (USDA Food and Nutrition Service, 2019). There were significant declines in enrollment between school years ’16-’17 and ’17-18 for both St. Croix and St. Thomas.

<table>
<thead>
<tr>
<th></th>
<th>St. Croix</th>
<th>St. Thomas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td>244,832</td>
<td>42,273</td>
</tr>
<tr>
<td>Lunch</td>
<td>668,058</td>
<td>227,537</td>
</tr>
</tbody>
</table>

**Education**

Students involved in school gardens have scored higher on science achievement exams. They cultivate continued learning and positive attitudes towards education. Soil can be used a metaphor for education because it promotes teaching principles. These include interconnectedness, curiosity, sense of belonging, and practical experience. School gardens also interdisciplinary teaching tools that can teach nutrition, science, math, arts, and English simultaneously.

As of 2015, the USVI had around 20,500 students enrolled in school throughout the territory (ages 3 and older).

<table>
<thead>
<tr>
<th>School Enrollment</th>
<th>Total</th>
<th>Black</th>
<th>White</th>
<th>Other Races</th>
</tr>
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<tbody>
<tr>
<td><strong>Virgin Islands Territory</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total No.</td>
<td>20,471</td>
<td>17,476</td>
<td>1,258</td>
<td>1,736</td>
</tr>
<tr>
<td>Females</td>
<td>10,270</td>
<td>8,701</td>
<td>673</td>
<td>896</td>
</tr>
<tr>
<td><strong>St. Croix</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total No.</td>
<td>10,519</td>
<td>8,535</td>
<td>490</td>
<td>1,493</td>
</tr>
<tr>
<td>Females</td>
<td>5,067</td>
<td>4,017</td>
<td>231</td>
<td>819</td>
</tr>
<tr>
<td>**St. Thomas</td>
<td>St. John**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total No.</td>
<td>9,952</td>
<td>8,941</td>
<td>768</td>
<td>243</td>
</tr>
<tr>
<td>Females</td>
<td>5,203</td>
<td>4,684</td>
<td>441</td>
<td>77</td>
</tr>
</tbody>
</table>

Table 38: School Enrollment by Island, 2015, Age 3 and Older: (Eastern Caribbean Center and University of the Virgin Islands, 2015; issued 2018)

“Public school enrollment throughout the territory decreased continually between school years 2015-2016 and 2018-2019 with a total decline of approximately 23%” (Caribbean Exploratory Research Center, 2019)

The Good Food Coalition and USDA Farm to School Initiative have several different programs that support healthy eating habits among school-age children throughout the Virgin Islands by increasing the amount of local fresh fruits and vegetables that are used in school cafeterias.”

Sommer Sibilly-Brown: goodfoodcoalition.vi@gmail.com

Velda Hendricks: velda.hendricks@doa.vi.gov

Agriculture in the Classroom is now a policy that the Department of Education mandates- see policy section.
University of the Virgin Islands
- Campuses on St. Croix and St. Thomas, online courses
- School of Business, School of Education, College of Liberal Arts and Social Sciences, College of Science and Mathematics
- Associate degrees, Bachelor’s degrees, Master’s degrees, and PhD programs

University of Virgin Islands Extension Program currently offers Youth Nutrition and Cooking Classes
Ages 11-14, learn about good nutrition and cooking
Safiya Taylor | 340.693.1073

School gardens assist with teaching students where their food comes from and production practices;

Virtues Project: “The Virtues Project is an international initiative focused on building peaceful and caring communities aligned to 52 virtues such as compassion, integrity, respect. The Virtues Project promotes community capacity-building to teach positive behaviors and attitudes and contribute to healthy and supportive environments across sectors. This is an initiative originated with a work group of Early Childhood Advisory Committee of the Children and Families Council and is moving forward with support from the Community Foundation of the Virgin Islands. We are working in collaboration with the Department of Education to infuse VI culture into the messages and to implement The Virtues Project in the public schools. We are working with the Department of Human Services to disseminate the virtue of the week to Head Start and child care centers with suggested developmentally appropriate activities. The goal is to engage the community in discussion and awareness of the Virtue of the Week in schools, child care settings, home, and the workplace through the media, religious institutions, schools and centers, government agencies, and business organizations.” (Community Foundation of the U.S. Virgin Islands, 2018)

USVI Kids County “USVI Kids Count is part of a national initiative, sponsored by the Annie E. Casey Foundation, to create a detailed community-by-community picture of the condition of children nationwide. There are now KIDS COUNT projects in all fifty states, the District of Columbia, Puerto Rico, and the US Virgin Islands. The Annie E. Casey Foundation annually produces a summary document reporting state-level data and national trends.

Early Childhood: “The mission of the CFVI’s Early Childhood involvement is to serve as a facilitator of efforts to promote early childhood experiences that will positively impact children’s development, readiness of school, and later life success. TFC is committed to raising public awareness, increasing parent/family engagement, advising stakeholders on best practices, and serving as a clearinghouse for funding dedicated to early childhood. The Community Foundation of the Virgin Islands (CFVI), through funding from the Annie E. Casey Foundation, compiles and disseminates information on the status of children in the USVI in the KIDS COUNT USVI Data Book. Data collected over the years brought the need to focus on improving the quality of early care and education to the forefront. In response, CFVI established in 2006 an early childhood initiative, entitled The Family Connection (TFC).”

Wellness
Walkability to school as well as around the school is a critical piece of wellness for children. A recent study on the United States Virgin Islands Walkability was conducted in 2017 which led to a Walkability Institute: (Rezvani, 2019)

The USVI Department of Health (DOH) in partnership with the Centers for Disease Control and Prevention, (CDC) and the Task Force for Global Health (TEPHINET) hosted a Walkability Institute on June 13-14, 2017.

In each location, the work follows a replicable model already in use across the United States: first, a community walkability assessment, then a Walkability Action Institute followed by team action planning for demonstration projects and policy recommendations. The end goal is to integrate change on a system level to ensure sustainability.

The USVI and Guam workshop teams are currently preparing to implement their demonstration projects, conducting data collection, and creating their new walkability-enhancing features (e.g., crosswalks in areas assessed for need).

In addition to recreation, healthy food consumption is necessary for all ages. Similar to other areas of the United States, there is much work to be done on fruit and vegetable consumption in the territory.
Policy
Establishment of school health program, medical and dental tests: The Commissioner of Education, with the collaboration of the Commissioner of Health as hereinafter provided, shall establish, maintain and administer a school health program in the Virgin Islands. Such program shall include; health services, health education and instruction, and healthful environment (Office of the Code Revisor, Legislature of the Virgin Islands, 2019)

Agriculture in the Classroom Program:
- The Department of Education shall seek the assistance of other government agencies and private organizations that are involved in the area of agriculture education for development and implementation of an agriculture education curriculum guide composed of thematic units, lesson plans, and educational field trips that are aligned with the academic content standards of the Department of Education for grades Kindergarten through grade twelve.
- The Department of Education shall arrange for at least one workshop per year for each school district to provide training to public school teachers in the following areas:
  - how to use agriculture education to supplement and enhance the teacher’s existing classroom curriculum;
  - the development of agricultural curriculum activities applicable to students from kindergarten through grade twelve; and
  - how to properly conduct agricultural curriculum activities.
- Each public elementary school in the Territory shall develop a school garden or greenhouse on the school grounds for use as an agriculture education resource. The Department of Education shall develop, research, and coordinate the best available practices regarding appropriate curriculum for school garden programs in kindergarten through 6th grade, in consultation with education and agricultural experts (Office of the Code Revisor, Legislature of the Virgin Islands, 2019)

Equity
School gardens are typically funded through donations and grants, so they’re oftentimes found in high-income neighborhoods. Many low-income school gardens tend to face a lack of leadership and monetary resources. Engaging community members can help connecting the needs of school gardening efforts with helpers. School gardens serve as multicultural space provide an inclusive environment for immigrants.

School gardens have been shown to positively impact student’s attitudes and provide an additional opportunity for social interaction among peers. (MSU Extension and Outreach, 2016)
Incubator and Beginning Farm Programs

Incubator farms aim to assist new and beginning farmer entrepreneurs in establishing their own successful business. Incubator farms typically train on successful business tactics and provide resources and services that are typically expensive or difficult to come by for start-up entrepreneurs on their own. Many forms of incubator farms exist, but all rely on land-based areas for training and include multiple-growers on site. Additionally, trainers and experts can be housed or consulted to teach various technical practices of farming. This may include on farm and classroom-based training and education for new farmers to understand production of crops, livestock and farm management. It can also be used as a way for prep for succession planning.

Existing beginning farmer programs and mentorship:

On farm mentoring and general paid work for farming has occurred at Ridge to Reef and Josephine’s Greens. We Grow Food also mentioned beginning farmer opportunities within their location on St. Thomas. Access to land and equipment is a critical need for new and beginning farmers and fishers in order to trial and learn about growing techniques and business models.

Incubator and beginning farm and fisher opportunities:

Discussions on increasing youth engagement in farming and fishing happened throughout the territory. DOA has begun hosting discussions for Future Farmers of America (FFA). FFA may be an appropriate program to offer on each island and incorporate different practices for fruit and vegetable, livestock, fisheries, and other production forms.

In addition to youth-based programming, access to land and support for mentorship on production and fishing best practices were discussed. This could occur through farm visits hosted by supportive organizations within the territory, or through a network of existing and interested farmers. Incubator farms and beginning farmer programs typically support capacity development for beginning farmers through land and tool access, business development strategies and technical assistance, as well as connections with other farmers. Conducting feasibility studies and working to understand and identify appropriate locations for incubator space may be beneficial. Questions to consider include:

- Are there existing properties, such as land with DOA, that may be suitable for incubator programs?
- What would the curricula and training look like for farmers participating in the program?
- What are the different levels to go through for graduation?
- Is the goal for farmers to stay on DOA land, or to purchase/lease their own property for their farm business?
- Upon graduation, do graduates have an increased ability to purchase and own land?
- What organization manages the incubator?

Community Discussion:

Throughout community input sessions and focus groups, many farmers mentioned the need for additional support on business skills, technical assistance for aggregation of products as well as equipment sharing opportunities. While these were not within the top priorities of the community, incubator programming and educational series could support the top needs of farmers within the territory, especially if it revolved around educational programming and technical assistance.

Having an increase in local food sold was the second top priority territory wide, this comes second to increased access to fresh fruits and vegetables. Promoting additional farming opportunities could support in community members gaining access to locally produced foods.
Interviews:

“Engaging students and building future prosperity is critical…this can be done through summer camps, demonstration gardens, shadowing employees…” (Collingwood, 2019)

We need to increase the interest in farming… (Food, 2019)

Have training and discussions on needs for selling different products (Value Added Agriculture); there may be potential for incubator programs for farm businesses (Nadine, 2019)

Department of Agriculture needs to provide more TA/ trainings for farmers; more basic skills- FFA, school gardens, youth education, farmer and business training… there is currently too much reliance on continuous government support (USDA Staff, 2019)

Importing food is decreasing the quality—99% of food is imported (We Grow Food, 2019)

Importing food is decreasing the quality of our food in the Virgin Islands; 99% of our food is imported…we also have land that is under-utilized, only 10-15% of land is in farming (Focus Group, 2018)

The hurricane’s stalled the beginning farmer efforts and made many people start new with both production and asset development (Farmer, St. Croix 2, 2018)

If we could get kids at a younger stage learning farming in school, we would more farmers coming into this work; right now a lot of the farmers are elders (St Thomas Farmer 3, 2018)

Environment

Much of the existing infrastructure is aging and fragile and has been damaged through the storms- including roads, maritime facilities and airports conditions (Task Force Advisory Committee, 2018). Many are now served by single lane roads with fragile condition. Repairs continue through DPW FHWA and FEMA and restoration requires more than $50 million for surface and wall repair; debris removal is an additional $30 million. FHWA is funding another $20 million for traffic signal and signage.

Water catchment and irrigation needs are relevant. There are current constraints with salinization and salt on crops, figuring out opportunities for appropriate watering strategies is important for beginning farmers. Additionally, considering resilient practices for shifts in climate, and overall water holding capacity of the soil is needed. Utilizing best practices such as agroforestry, permaculture, etc. may be beneficial in farms to both maintain healthy soil as well as diversity of crops. (USDA Staff, 2019)

There are also concerns on policy for land trusts and ensuring land is kept in agricultural practices. (Hodge, 2019) In order to continue to grow the agricultural economy, land access is essential as well as infrastructure needs including both transportation routes (roads, barges, etc.) and also the ability for processing facilities, value added production, etc.

Economy

Restoring Futures is a “Workforce Development effort to bring together workers with employers through On-the-Job Training for good jobs throughout the U.S. Virgin Islands. Restoring Futures is funded by $4,997,845 National Dislocated Worker Grant awarded to ICF by the U.S. Department of Labor, Employment and Training Administration.” This project encompasses the following industries: for-profit commercial, government agencies, and non-profit organizations. Partners include: Virgin Islands Department of Labor, Virgin Island Economic Development Authority, and Virgin Islands Workforce Development Board. (Workforce180, 2019)

“The Incubator Program is designed to help new and start-up businesses develop into full-fledged businesses by providing management training and other assistance enabling these businesses to grow and contribute to the economic development of the Territory.” (U.S. Virgin Islands Economic Development Authority, 2018)
Key Performance Indicators (KPI)  

<table>
<thead>
<tr>
<th></th>
<th>Actual FY 17</th>
<th>Target FY 18</th>
<th>Actual FY 2018 (as of 3/31/18)</th>
<th>Planned FY 19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of entrepreneurs assisted</td>
<td>30</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Number of businesses developed into full-fledged businesses</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 39: Incubator Program Outputs and Projections (U.S. Virgin Islands Economic Development Authority, 2018)

Programs that are supporting economic growth include the Farm Tiendas program—supported by Virgin Islands Good Food, Beam Suntory and Coca-Cola which launched in spring 2019. A new project for breadfruit production, in collaboration with Mutiny Vodka has a potential economic market for existing and beginning farmers; the Mutiny business is processing around 20,000 pounds of breadfruit/ batch or 480,000 pounds every six weeks. Having a local supply can impact the economy. (Malany, 2019)

Current gaps for additional economic development support include grant writing and business record keeping which are critical for business management and evolution.

**Data Profile**

**Table DP-1. United States Virgin Islands Data Profile, 2000 to Current**

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>2010</th>
<th>Current</th>
<th>2000 to 2010</th>
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<tr>
<td>Total resident employment</td>
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<td>47,272</td>
<td>43,200</td>
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<td>Unemployment rate</td>
<td>6.8</td>
<td>6.1</td>
<td>10.7</td>
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<tr>
<td>Nonfarm payroll jobs</td>
<td>41,600</td>
<td>44,200</td>
<td>38,250</td>
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<tr>
<td>Total population</td>
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<td>106,405</td>
<td>105,000</td>
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<td>-0.2</td>
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<tr>
<td>Total households</td>
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<td>43,214</td>
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<td>Owner households</td>
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<tr>
<td>Percent owner</td>
<td>46.0</td>
<td>47.9</td>
<td>47.1</td>
<td></td>
<td></td>
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<tr>
<td>Renter households</td>
<td>21,970</td>
<td>22,514</td>
<td>23,400</td>
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<tr>
<td>Percent renter</td>
<td>54.0</td>
<td>52.1</td>
<td>52.9</td>
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<td></td>
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<tr>
<td>Total housing units</td>
<td>50,202</td>
<td>55,901</td>
<td>59,900</td>
<td>1.1</td>
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<td>Owner vacancy rate</td>
<td>12.8</td>
<td>3.7</td>
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<tr>
<td>Rental vacancy rate</td>
<td>10.1</td>
<td>13.8</td>
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</table>

Sources: U.S. Census Bureau; U.S. Department of Housing and Urban Development; 2013 Virgin Islands Community Survey; estimates by analysts

Figure 23: UNITED STATES VIRGIN ISLANDS DATA PROFILE- 2000 TO CURRENT (U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT, OFFICE OF POLICY DEVELOPMENT AND OUTREACH, 2017)

**Education**

The definition for a beginning farmer according many Farm Bill Programs is “farmers who have never previously operated a farm or ranch, or have operated a farm or ranch for no more than 10 years” (National Oceanic and Atmospheric Administration, 2018). There are currently 77 beginning farmers in the USVI (35% of all farmers in the territory). While we heard of interest in programming and education for beginning farmers, there is a need to identify all programs that exist. Many of the national and territory programs are listed within the “Farm Tactic” on pg. 86.

**Beginning and Socially Disadvantaged Farmers:**

An outreach program through USDA for assistance to Socially Disadvantaged and Veteran Farmers and Ranchers (Section 2501 program). The program specifically supports working with farmers to help in ownership and operation of farms. Very few projects have been funded in this
program. Only four were awarded in the entire Caribbean territory since 2003, all of the awarded grants went to University of Puerto Rico and one to University of Hawaii.

Many farmers discussed the need for technical assistance and education. This included both education on access to resources, as well as production skills. During discussions on island, the following list describes ideas and opportunities that were discussed:

- Need to engage in staff training-- they may not have seen the models of success --> need to expose farmers and staff that are working well and tested, vs. just trying many different things
- Demonstration plots/ see strategies that work best --> evidence based that motivates and inspire excellence
- Engaging students in future farm prosperity--> farm to school program and engagement
- Started this summer by having students interning on campus at department and have themed summer camp - demonstration garden/ shadowing employees and learning technical skills
- Velda Hendricks is in charge; also collaborating with other departments and community wide initiative- working also with DOE / Human Services
- Educate community that they can also understand they can purchase from producers
- Training with farmers- SNAP EBT training (7.2 million dollars / month in the territory that farmers have not had access to before)
- They are now becoming authorized to be able to access
- Market program- hoping to have farmers come and market - location beyond farmers market -- hoping for value added product there and have general market place
- Plan to work with senior citizens/ retirees to develop a master gardener program and get them certified to support and engage youth in the schools as well as community gardens
- Encourage backyard farming- and new crop options -- and increase production through those mechanisms
- Creating a standard in agriculture that young people can emulate and is worth pursuing and has economic value -- raising the caliber of what we do in agriculture

Wellness
Working with plants and the outdoors has been shown to have a direct connection with improved mental, physical and emotional health. While this can be shown in gardening directly at smaller scales, there are correlations with larger scale practices. However, stress can also be increased when considering farm finances and environmental stressors that are uncontrollable. It is important to have plans in place to ensure these stressors do not go unmanaged and turn into poor mental health for farmers. (Growing Alliances, 2017; Grinnell Mutual, 2019; Farm Stress Resource Team, 2019)

Policy
There is a lack of accountability for farmers; there are not regular record keeping strategies that assist with point of sales data. This leads to a gap of understanding on existing sales as well as data during times of disaster. There may be an opportunity for DoA to institute a policy for record keeping assisting in farming benchmarking and overall support for farm business development.

Record keeping needs- many farmers currently do not practice consistent record keeping. And therefore, are unable to provide information on sales, expenses, and general data for their business decision making practices. When farmers then need loans, disaster support, etc. they are unable to provide the appropriate documentation to receive support. There is a strong need for an increase in the record keeping and business practices instituted for farmers.

There are also concerns on policy for land trusts and ensuring land is kept in agricultural practices. (Hodge, 2019)

Homesteading/Housing of public farmland: (Office of the Code Revisor, Legislature of the Virgin Islands, 2019)
The Commissioner shall allow the lease holder of government property leased to farmers to construct a wooden structure or to put a trailer upon the leased premises. The Commissioner may not allow any masonry or similar type structure to be constructed on Government-leased farmland. All structures must be totally removed when a lease is expired or terminated, at the discretion of the Commissioner.

No leased farmland may consist of more than one-single family, non-masonry structure and one non-masonry storage/utility building, to every five-acre parcel. Any additional structure permitted may be at the discretion of the Commissioner. Farmers must notify and receive approval from the Commissioner, in writing, thirty days before erecting or establishing any structure on leased farmland.
No poured foundations for structures and storage/utilities are allowed on Government leased farmland.

Nothing in this section relieves the lease holder from obtaining the necessary building permits required by the Department of Planning and Natural Resources.

**Promotion of the Ag Industry:**
- The Department of Agriculture in an effort to promote sustainable agriculture shall collaborate with the Department of Education and the Board of Education to incorporate agricultural science courses in the curriculum at all grade levels, including kindergarten, by:
  - providing agriculture programs, through the school system;
  - providing significant opportunities of vocational education in agriculture; and
  - developing programs to counsel school dropouts and rehabilitation programs for juvenile delinquents, first-time criminal offenders, and those being released from the prison system by providing alternative programs, such as agricultural training camps and employment opportunities in the agricultural industry.
- The Commissioner shall collaborate with the Department of Justice to create sustainable prison farms as a means of providing supplemental food to the prison and as an alternative means of rehabilitation in the prison system for the development of prisoners who are released into society.
- The Commissioner, in conjunction with the University of the Virgin Islands and the Department of Education, shall establish programs that further assists in the development of future agriculturists who will provide for the continued sustainable development of an agriculture industry, and provide adequate training in agricultural sciences to grant agriculturists certification.
- The Commissioner shall:
  - Conduct a program of incentives through a cost-sharing program;
  - Develop a program for assisting in the marketing of local agricultural products;
  - Maintain adequate livestock health services;
  - Develop a program, in conjunction with the University of the Virgin Islands Co-operative Extension Service, the Department of Education, and Department of Labor to encourage the processing of local agricultural produce and products;
  - Develop a program to assure a source of supply of forage and other resources needed for the livestock industry; and
  - Develop a program to make water available to farmers during times of drought (Office of the Code Revisor, Legislature of the Virgin Islands, 2019)

**The Virgin Islands Fruit of Choice, Julie Mango**

Policy supports the growth of Mango fruit trees on properties throughout the territory. The Department of Agriculture shall establish and implement the Julie Mango in Every Yard Program to encourage private residents of the Virgin Islands to dedicate a portion of their land for at least one Julie Mango Tree.

- The program established by the Department of Agriculture must provide financial incentive to Virgin Islands residents who grow Julie Mango trees in their yard through an established purchasing program that buys from each owner a percentage of their Julie mango tree harvest.
- The Department of Tourism shall assist the Department of Agriculture in promoting the Julie Mango in Every Yard Program locally and nationally to encourage productions by residents who live in the territory and owners of land in the Virgin Islands who live abroad. (Office of the Code Revisor, Legislature of the Virgin Islands, 2019)

**Equity**

Incubator and Beginning Farmer programs can provide ways for all individuals looking to get into agriculture to gain experience. This includes minority and underserved populations. Providing opportunities for new and younger generations to get into the farming field is another needed aspect to equity in this arena. A few concerns were stated during conversations in the territory regarding chauvinist attitudes and disregard for women; also a lack of listening and understanding of issues and concerns; women have a place and if they speak up you are troublesome; lack of support and authority to work together (St. Croix Farmer 4, 2018).
Farms
Urban farms use urban land to maximize local food outputs and assists in meeting needs for local food production and community food security. This contributes to the safety, health, and diversity of environments, and promotes economic growth by keeping local dollars within the community. Urban farming enhances the community by providing a sustainable food source within city limits develops community capacity; and improves health through access to nutritious food and exercise opportunities. Farming in the city enhances the built environment through the incorporation of soft and open spaces and also benefits the air quality, biodiversity, soil quality and overall enhancement of city aesthetics.

Rural farming is an integral part to the existing food system and directly impacts the affordability of our food. A strong agricultural economy is critical in creating a strong national and rural economy. Current programs exist to assist and support small and medium size farms to diversify and scale up in order to improve access to healthy food for consumers. The Farm Bill directly affects the opportunity to develop farming business and rural development as well as the availability and resources to source local and organic products. Rural, sustainable agriculture contributes vast number of products into the local and regional food system with practices that are typically environmentally conscious practices, socially equitable, and humane to animals. Rural and Sustainable farms are most often operating at a larger scale than urban settings and can thus provide larger quantities into the food system through various means of retail and wholesale marketing, aggregation, or direct sales.

Existing Farms: 219 farms in the USVI that range from less than 3 acres to over 100 acres; We Grow Food: between 30-40 farmers participate in organization and farm on land leased from Department of Agriculture

Farm opportunities:
While there are over 200 farms within the territory, it may be helpful for the DOA to develop an understanding of a farm business and a hobby farm. Based on site visits and interviews, many farms operate like a non-profit regarding financials and value proposition. It may be helpful to support farmers in developing and understanding their business in regard to their business model, values and goals for the future, value proposition to markets, etc. When these questions are answered and understood, farmers and fishers may be better able to consider appropriate routes for their future regarding business growth or retention of existing production.

All but 20 farms within the territory operate on land less than 40 acres, with appx. 150 farms operating between 0-9 acres. While the number of farms is high, the ability to grow product at quantity for sale to retailers, grocers, schools, etc. may not meet the demand. There may be potential in developing collaborative programs that farms coordinate their growing practices, whether that is growing the same products to be able to aggregate and sell cooperatively to markets at a wholesale scale or coordinating to differentiate products so there is additional available products for retail and direct to consumer sales. Similarly, there were several comments about utilizing land on St. John, specifically in Coral Bay for increased agricultural production.

In addition to coordination, support for equipment and tool access may be a future opportunity for farmers. Tool libraries have been options to support in capacity for farmers through rental of tools needed on farms. These are helpful resources when farmers are unable to purchase more expensive equipment. Tool libraries are typically housed within an organization or department and individuals can apply to rent out equipment for specific times throughout the year. Like access to equipment, land ownership and tenancy was also identified as a need throughout the territory. While there are opportunities to lease and rent property through the DOA, restrictions of the rental agreement include inability to build structures on property. Some farmers are seeking land property closer to their residence, or the ability to live on farm. Options for land purchase and leasing may be needed in the future.

Community Discussion:
Throughout community input sessions and focus groups, many farmers mentioned the need for additional support on business skills, technical assistance for aggregation of products as well as equipment sharing opportunities. Additionally, support for accessing water resources was
There was also mention of labor needs and support, which could potentially be supported through school garden and educational programs. A mentorship or internship program may be able to help identify labor within the territory that can be partnered with farmers.

**Having an increase in local food sold was the second top priority territory wide, this comes second to increased access to fresh fruits and vegetables. Promoting additional farming opportunities could support in community members gaining access to locally produced foods.**

**Interviews:**

Farmers are a super resilient population…people are still farming, just no one on the books, there is a social stigma around farming, especially around women farmers (Brin, 2019)

Offering training to farmers on SNAP EBT, there are $7.2 million dollars/month in the territory that farmers have not had access to before…” (Collingwood, 2019)

Creating a standard in agriculture that young people can emulate and is worth pursuing and has economic value — raising the caliber of what we do in agriculture… May need to understand additional crops or new crops that are needed to grow to build resilience- discussed emergency management and planning as well as root crops and storage (Collingwood, 2019)

Purchasing cucumbers, watermelons, tomatoes, lettuce, avocados from local farmers…have not been able to find local meat; but fairly sporadic in terms of consistent quantity to receive… we need more producers and more farmers (Distribution, 2019)

Since the hurricanes experiencing extreme drought, need technical assistance support in regards to water access, fencing, mulch, material access… (We Grow Food, 2019)

There is lack of support from the Government…it is hard when the Government changes every two years (Farmer S.T., 2019)

The Government creates hurdles, both local and FEMA; not all farmers have to follow the same rules (Farmer, 2019)

Want to buy local- but can’t do processing…Farmers have to go to the stores— the stores want to buy local, but they don’t know what to start. Something like a meet the buyer may be helpful (Sarah, Scoops & Brews, 2019)

Department of Agriculture needs to provide more TA/ trainings for farmers; more basic skills- FFA, school gardens, youth education, farmer and business training…there is currently too much reliance on continuous government support. (USDA Staff, 2019)

Need to reduce imports and increase local food production- linking local foods to health outcomes (Marcus, 2019)

Need better access to resources and water catchment support…similarly better market development for farmers (Hodge, 2019)

Need transportation, refrigeration and distribution for farmers (Eron, 2019)

There is a broken government- but don’t have the leadership to fix it– too many other agendas (St Thomas Farmer, 2019)

Primary goal to increase farmers in the community to then increase food availability; there is a need for farmer coordination (Abraham, 2018)

The USDA has pretty much slapped all of the farmers in the face and they keep doing it…there are posts in Puerto Rico posts and NRCS has given out $21 million to Puerto Rico and Virgin Island Farmers, however, 20.6 million went to Puerto Rico, and .4 came to Virgin islands (St. Croix Farmer, 2018)

Agriculture is critical to our infrastructure and we believe we have a lot more to offer (Focus Group 2, 2018)
Environment

The USVI currently imports 99% of its agricultural product. Farmers have an opportunity to get into this market through local sales from direct to consumer, retail and wholesale opportunities.

According to the most recent USDA agricultural census, there are 219 farms in the USVI. However, this census was conducted in 2007 and may not include accurate numbers. These range from less than 3 acres to over 100 acres.

<table>
<thead>
<tr>
<th>Size of Farms</th>
<th># of Farms</th>
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<tbody>
<tr>
<td>Less than 3 Acres</td>
<td>86</td>
</tr>
<tr>
<td>3-9 Acres</td>
<td>63</td>
</tr>
<tr>
<td>10-19 Acres</td>
<td>35</td>
</tr>
<tr>
<td>20-49 Acres</td>
<td>15</td>
</tr>
<tr>
<td>50-99 Acres</td>
<td>12</td>
</tr>
<tr>
<td>100+ Acres</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>219</td>
</tr>
</tbody>
</table>

Table 40: Size of Farms: (USDA, 2009)

Much of the existing infrastructure is aging and fragile and has been damaged through the storms— including roads, maritime facilities and airports conditions (Task Force Advisory Committee, 2018). Many are now served by single lane roads with fragile condition. Repairs continue through DPW FHWA and FEMA.

Restoration requires more than $50 million for surface and wall repair; debris removal is an additional $30 million. FHWA is funding another $20 million for traffic signal and signage. Cargo arrives on Crown Bay Dock on STT- US Customs process or at Wilfred “Bomba” Allick Port on STX. Importing cargo is costly and time-consuming and involves the Bureau of Internal Revenue and U.S. customs.

After the storms much less cargo was able to arrive; additionally, with other parking and infrastructure damage it took immense time for individuals to pick up their cargo. Throughout the hurricane, mainland support would be sent in and would incur importation fees in the form of an excise tax—only registered non-profit organizations are exempt from these fees – this led to increased stress during the aftermath of the hurricane.

Following the hurricane, Red Cross provided 302 farmers with up to $2000 for rebuilding of their farm infrastructure (John, TBD Restaurant, 2019); they also supported Department of Agriculture in rebuilding the greenhouses and infrastructure damaged in the storms. With the overall intent to support the capacity of farmers to have seedlings and technical assistance in the future for farming resilience.

Crops that survived and recovered well after the hurricanes included: Coconut trees, root crops, gourds, Bananas, lemongrass and other herbs, Meringa, noni, papaya, mango (June Focus Group Discussion, 2018). There is needed improvements to transportation infrastructure related to food aggregation, storage and distribution.

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Land</td>
<td>11.5%</td>
</tr>
<tr>
<td>Arable Land</td>
<td>2.9%</td>
</tr>
<tr>
<td>Permanent Crops</td>
<td>2.9%</td>
</tr>
<tr>
<td>Permanent Pasture</td>
<td>5.7%</td>
</tr>
<tr>
<td>Forest</td>
<td>57.4%</td>
</tr>
<tr>
<td>Other</td>
<td>31.1%</td>
</tr>
</tbody>
</table>

Table 41: Virgin Island Land Use: (CIA World Factbook, 2018)

With much of the land use in agriculture or forest, there are opportunities to conserve agriculture property. The Trust for Public Land - VI projects are listed below (The Trust for Public Land, 2019):

1. Castle Nugent: 1400 acre Castle Nugent Farms (largest privately held property) -STX
   a. Cattle ranch raising- Senepol cattle
2. Coastal and Historic Land Protection- STJ/ STX/ STT
3. Estate Grange- STX
   a. National historic site
4. Estate Maho Bay - STJ
   a. September 2007 - purchased 419 acre site
5. Hawksnest Bay - STJ
   a. 1999 protected Gibney Beach in Hawksnest Bay - ranked one of the top 10 beautiful beaches in the world
6. Roosevelt Park – STT
   a. Restore historic Franklin D. Roosevelt Park with private philanthropist
7. Salt River Bay National Historical Park and Ecological Preserve - STX
   a. 120 acres protected

### Economy

#### Occupation: Employment

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Total Females</th>
<th>Black</th>
<th>White</th>
<th>Other Races</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Virgin Islands Territory</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Employed Civilian Workers*</td>
<td>29,107</td>
<td>16,394</td>
<td>23,450</td>
<td>3,245</td>
<td>2,412</td>
</tr>
<tr>
<td>Food Preparation and Service</td>
<td>2,378</td>
<td>1,659</td>
<td>1,908</td>
<td>321</td>
<td>149</td>
</tr>
<tr>
<td>Farming, Forestry, and Fishing</td>
<td>1,225</td>
<td>99</td>
<td>970</td>
<td>138</td>
<td>117</td>
</tr>
<tr>
<td>Retail Trade (Food Stores)</td>
<td>1,057</td>
<td>N/A</td>
<td>844</td>
<td>71</td>
<td>142</td>
</tr>
<tr>
<td>Retail Trade (Eating and Drinking Places)</td>
<td>1,802</td>
<td>1,244</td>
<td>1,347</td>
<td>373</td>
<td>83</td>
</tr>
<tr>
<td>Agriculture</td>
<td>29,107</td>
<td>29</td>
<td>23,450</td>
<td>3,245</td>
<td>22,412</td>
</tr>
</tbody>
</table>

*Figure 24: Employed Civilian Workers by Race, Selected Food-Related Occupations: (Eastern Caribbean Center and University of the Virgin Islands, 2015; issued 2018)*

#### Farm Employment

<table>
<thead>
<tr>
<th></th>
<th>Full Owners</th>
<th>Part Owners</th>
<th>Tenants</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Farms</strong></td>
<td>109</td>
<td>21</td>
<td>89</td>
<td>219</td>
</tr>
</tbody>
</table>

*Table 42: Farm Employment: (USDA, 2009)*

#### Labor Status

<table>
<thead>
<tr>
<th></th>
<th>Less than 25 days</th>
<th>25 to 149 days</th>
<th>150+ days</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unpaid Labor</td>
<td>31</td>
<td>82</td>
<td>288</td>
<td>401</td>
</tr>
<tr>
<td>Hired Farm Labor</td>
<td>30</td>
<td>41</td>
<td>110</td>
<td></td>
</tr>
</tbody>
</table>

*Table 43: Labor Status: (USDA, 2009) [in total number of workers]*

Throughout the assessment process, countless stories were shared about the need for decreasing the amount of imports and increasing local food production and harvesting opportunities. This also includes the ability to diversify products and meet local demand for product quality, consistency, and markets.

**Economic development opportunities:**

- Farm Tiendas program- supported by Virgin Islands Good Food, Beam Suntory and Coca-Cola
- Including SNAP EBT as a point of sale is a new economic driver for farmers through farmers markets or on farm sales. There are trainings available to teach on this practice.
- Different retailers and distribution businesses try to support local, but there can be issues with consistency of product. Difficult to find the right price for both the market and the farmer.
- Partnering with processors and food businesses on contracts for retail or wholesale sales; an example includes breadfruit production for Mutiny Vodka.

All livestock must be slaughtered at an abattoir. Currently there is only 1 abattoir available, located on St. Croix. This creates a small window for livestock farmers to have access to slaughtering facilities. With the Abattoir closed in St. Thomas many farmers that still have livestock are shipping them to St. Croix for slaughter. This is an $800 trip each way and impedes economic return from product. (Farmer S. T., 2019)

<table>
<thead>
<tr>
<th>Live Stock Slaughtered</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheep</td>
<td>182</td>
<td>217</td>
</tr>
<tr>
<td>Goats</td>
<td>77</td>
<td>24</td>
</tr>
<tr>
<td>Cattle</td>
<td>62</td>
<td>39</td>
</tr>
<tr>
<td>Swine</td>
<td>319</td>
<td>98</td>
</tr>
</tbody>
</table>
Table 44: Slaughter Numbers by Unit: provided by Sarah Symmons- Department of Agriculture (year of 2018 and half of 2019)

There are currently 219 farms in the USVI. These range from less than 3 acres to over 100 acres.

<table>
<thead>
<tr>
<th>Farms</th>
<th>Less than 3 Acres</th>
<th>3-9 Acres</th>
<th>10-19 Acres</th>
<th>20-49 Acres</th>
<th>50-99 Acres</th>
<th>100+ Acres</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Farms</td>
<td>86</td>
<td>63</td>
<td>35</td>
<td>15</td>
<td>12</td>
<td>8</td>
<td>219</td>
</tr>
</tbody>
</table>

Table 45: Size of Farms: (USDA, 2009)

Average Size of Farms: (USDA, 2009)
- Of the 86 farms that are less than 3 acres, the average size is 1.5 acres
- Of the 63 farms that are 3 to 9 acres, the average size is 4.7 acres
- Of the 35 farms that are 10 to 19 acres, the average size is 13.2 acres
- Of the 15 farms that are 20 to 49 acres, the average size is 26.8 acres
- Of the 12 farms that are 50 to 99 acres, the average size is 70.3 acres
- Of the 8 farms that are 100 or more acres, the average size is 486.6 acres
- The average size of the 219 total farms is 26.9 acres

<table>
<thead>
<tr>
<th>Number of Farms with Livestock; based on size of farm and type of livestock</th>
<th># of Farms Cattle and Calves</th>
<th># of Farms Hogs and Pigs</th>
<th># of Farms Sheep + Lambs</th>
<th># of Farms Goats + Kids</th>
<th># of Farms Poultry</th>
<th># of Farms Turkeys, Ducks, Geese, Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 3</td>
<td>2</td>
<td>7</td>
<td>7</td>
<td>17</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>4-9</td>
<td>3</td>
<td>8</td>
<td>9</td>
<td>20</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>10-19</td>
<td>5</td>
<td>7</td>
<td>18</td>
<td>21</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>20-49</td>
<td>2</td>
<td>1</td>
<td>11</td>
<td>8</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>50-99</td>
<td>7</td>
<td>3</td>
<td>5</td>
<td>6</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>100+</td>
<td>6</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total # of farms</td>
<td>25</td>
<td>28</td>
<td>51</td>
<td>73</td>
<td>13</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 46: Number of Farms based on livestock raised: (USDA, 2009)

Specialty Crops:

<table>
<thead>
<tr>
<th>Number of Farms with field crops- comparison between 2002 and 2007</th>
<th>Total # of Farms 2002</th>
<th>Total # of Farms 2007</th>
<th>Total # of lbs. harvested 2002</th>
<th>Total # of lbs. harvested 2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virgin Islands Territory</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cassava</td>
<td>23</td>
<td>21</td>
<td>5,850</td>
<td>5,282</td>
</tr>
<tr>
<td>Dry Beans</td>
<td>12</td>
<td>13</td>
<td>1,290</td>
<td>2,835</td>
</tr>
<tr>
<td>Dry Corn</td>
<td>17</td>
<td>7</td>
<td>7,105</td>
<td>4,900</td>
</tr>
<tr>
<td>Hay</td>
<td>2</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sorghum</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sugarcane</td>
<td>12</td>
<td>19</td>
<td>8,280</td>
<td>29,759</td>
</tr>
<tr>
<td>Sweet Potatoes</td>
<td>18</td>
<td>18</td>
<td>11,980</td>
<td>7,270</td>
</tr>
<tr>
<td>Tapiers</td>
<td>4</td>
<td>11</td>
<td>1,350</td>
<td>2,863</td>
</tr>
<tr>
<td>Yams</td>
<td>9</td>
<td>21</td>
<td>8,470</td>
<td>13,040</td>
</tr>
<tr>
<td>Other</td>
<td>9</td>
<td>1</td>
<td>4,730</td>
<td>-</td>
</tr>
<tr>
<td>Total lbs. harvested</td>
<td>-</td>
<td>-</td>
<td>49,055</td>
<td>65,949</td>
</tr>
</tbody>
</table>

Table 47: Field Crops: (USDA, 2009)

St. Croix total lbs. harvested is approximately 56% of total lbs. harvested for the territory in 2002; and approximately 72% in 2007.
St. Thomas and St. John total lbs. harvested is approximately 21% of total lbs. harvested for the territory in 2002; and approximately 23% in 2007.

<table>
<thead>
<tr>
<th>Number of Farms with Vegetable Crops- Comparison between 2002 and 2007</th>
<th>Total # of Farms 2002</th>
<th>Total # of Farms 2007</th>
<th>Total # of lbs. harvested 2002</th>
<th>Total # of lbs. harvested 2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virgin Islands Territory</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cabbage</td>
<td>15</td>
<td>24</td>
<td>6,755</td>
<td>6,070</td>
</tr>
<tr>
<td>Carrots</td>
<td>7</td>
<td>11</td>
<td>1,058</td>
<td>1,705</td>
</tr>
<tr>
<td>Celery</td>
<td>14</td>
<td>23</td>
<td>2,100</td>
<td>4,775</td>
</tr>
<tr>
<td>Cucumbers</td>
<td>41</td>
<td>49</td>
<td>161,640</td>
<td>112,545</td>
</tr>
<tr>
<td>Eggplant</td>
<td>40</td>
<td>54</td>
<td>19,495</td>
<td>37,163</td>
</tr>
<tr>
<td>Green Beans</td>
<td>16</td>
<td>13</td>
<td>3,760</td>
<td>3,430</td>
</tr>
<tr>
<td>Lettuce</td>
<td>8</td>
<td>22</td>
<td>38,660</td>
<td>7,970</td>
</tr>
<tr>
<td>Okra</td>
<td>40</td>
<td>51</td>
<td>21,980</td>
<td>18,489</td>
</tr>
<tr>
<td>Onions</td>
<td>2</td>
<td>10</td>
<td>-</td>
<td>2,751</td>
</tr>
<tr>
<td>Peppers</td>
<td>51</td>
<td>64</td>
<td>14,750</td>
<td>31,475</td>
</tr>
<tr>
<td>Spinach</td>
<td>11</td>
<td>19</td>
<td>2,457</td>
<td>6,546</td>
</tr>
<tr>
<td>Squash</td>
<td>16</td>
<td>17</td>
<td>6,945</td>
<td>4,230</td>
</tr>
<tr>
<td>Tomatoes</td>
<td>38</td>
<td>52</td>
<td>42,975</td>
<td>42,282</td>
</tr>
<tr>
<td>Other</td>
<td>27</td>
<td>53</td>
<td>29,045</td>
<td>141,730</td>
</tr>
<tr>
<td>Total lbs. harvested</td>
<td>-</td>
<td>-</td>
<td>351,620</td>
<td>421,161</td>
</tr>
</tbody>
</table>

Table 48: Vegetable Crops: (USDA, 2009)

St. Croix total lbs. harvested is approximately 77% of total lbs. harvested for the territory in 2002; and approximately 84% in 2007. St. Thomas and St. John total lbs. harvested is approximately 22% of total lbs. harvested for the territory in 2002; and approximately 16% in 2007.

<table>
<thead>
<tr>
<th>Number of Farms with Fruit, Nut and Tree Crops- Comparison between 2002 and 2007</th>
<th>Total # of Farms 2002</th>
<th>Total # of Farms 2007</th>
<th>Total # of lbs. harvested 2002</th>
<th>Total # of lbs. harvested 2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virgin Islands Territory</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avocados</td>
<td>40</td>
<td>75</td>
<td>8,440</td>
<td>27,085</td>
</tr>
<tr>
<td>Bananas</td>
<td>59</td>
<td>87</td>
<td>37,925</td>
<td>95,924</td>
</tr>
<tr>
<td>Breadfruit</td>
<td>37</td>
<td>54</td>
<td>5,875</td>
<td>10,713</td>
</tr>
<tr>
<td>Coconuts</td>
<td>44</td>
<td>81</td>
<td>12,830</td>
<td>46,442</td>
</tr>
<tr>
<td>Grapefruits</td>
<td>23</td>
<td>41</td>
<td>4,997</td>
<td>5,680</td>
</tr>
<tr>
<td>Limes/Lemons</td>
<td>46</td>
<td>77</td>
<td>6,430</td>
<td>16,995</td>
</tr>
<tr>
<td>Mangoes</td>
<td>59</td>
<td>91</td>
<td>42,285</td>
<td>83,740</td>
</tr>
<tr>
<td>Oranges</td>
<td>16</td>
<td>41</td>
<td>3,888</td>
<td>5,208</td>
</tr>
<tr>
<td>Papayas</td>
<td>42</td>
<td>58</td>
<td>21,304</td>
<td>20,390</td>
</tr>
<tr>
<td>Pineapples</td>
<td>11</td>
<td>29</td>
<td>7,264</td>
<td>2,881</td>
</tr>
<tr>
<td>Plantains</td>
<td>16</td>
<td>45</td>
<td>1,670</td>
<td>27,763</td>
</tr>
<tr>
<td>Other</td>
<td>40</td>
<td>62</td>
<td>15,885</td>
<td>26,613</td>
</tr>
<tr>
<td>Specialty Crops</td>
<td>30</td>
<td>21</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total # of lbs. harvested</td>
<td>-</td>
<td>-</td>
<td>168,793</td>
<td>369,434</td>
</tr>
</tbody>
</table>

Table 49: Fruits, Nuts and Tree Crops: (USDA, 2009)

St. Croix total lbs. harvested is approximately 73% of total lbs. harvested for the territory in 2002; and approximately 62% in 2007. St. Thomas and St. John total lbs. harvested is approximately 25% of total lbs. harvested for the territory in 2002; and approximately 28% in 2007.
### Farm Profitability

<table>
<thead>
<tr>
<th>Total # of Farms</th>
<th>Total Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>$500 - $1,199</strong></td>
<td><strong>61</strong></td>
</tr>
<tr>
<td><strong>$7,499</strong></td>
<td><strong>$46,052</strong></td>
</tr>
<tr>
<td><strong>$1,200 - $2,499</strong></td>
<td><strong>46</strong></td>
</tr>
<tr>
<td><strong>$2,500 - $4,999</strong></td>
<td><strong>44</strong></td>
</tr>
<tr>
<td><strong>$7,500 - $9,999</strong></td>
<td><strong>31</strong></td>
</tr>
<tr>
<td><strong>$10,000 +</strong></td>
<td><strong>9</strong></td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>219</strong></td>
</tr>
</tbody>
</table>

**Averages per Farm**

- **$9,457**

| **Table 50: Farms by Value of Agricultural Products Sold: (USDA, 2009)** |

### Funding Opportunities: Grants and Loans

**REAP: Rural Energy for America**

Awards grants and loans to farmers in rural areas for transition to wind, solar and renewable energy programs. 14 grants have been awarded to the USVI since 2008.

**Beginning and Socially Disadvantaged Farmers**

An outreach program through USDA for assistance to Socially Disadvantaged and Veteran Farmers and Ranchers (Section 2501 program). The program specifically supports working with farmers to help in ownership and operation of farms. Very few projects have been funded in this program. Only four were awarded in the entire Caribbean territory since 2003, all of the awarded grants went to University of Puerto Rico and one to University of Hawaii.

**SARE: Sustainable Agriculture Research and Extension Program**

Available funding and grants to the territory and Caribbean region.

**Agency Loans**

A USDA operated program that provides direct and guaranteed farm ownership and operating loans. Within the USVI, there have been 13 loans offered between 2013-2017.

**NAP: Non-Insured Crop Disaster Assistance Program**: insurance that can be purchased to cover non-insurable crops. At this point, USVI has not received funding for crop losses through NAP. It is unsure if any have been requested. (National Oceanic and Atmospheric Administration, 2018)

**Supplemental USDA Disaster Assistance**: provided to USVI and Puerto Rico following the hurricanes.
**VAPG: Value Added Producer Grants**

Only one VAPG grant has been awarded in the USVI as of 2016. There may be a need for additional outreach support for USDA Rural Development throughout the USVI territory to raise up the opportunities to apply for funding, as well as grant-writing technical assistance. (National Oceanic and Atmospheric Administration, 2018)

**FMLPP: Farmers Market Local Food Promotion Program**

This grant supports the establishment, development and marketing of farmers markets and other local food infrastructure. The program supports both food access as well as economic development initiatives. No grants have been awarded to the USVI, and 3 have been awarded in total to the Caribbean territory (1 in Guam and 2 in Puerto Rico).

**USDA Farm to School:**

This grant focuses on farm to school activities including school gardens, nutrition education and local food procurement. USVI has received one Farm to School Grant in 2015.

**SCBG: Specialty Crop Block Grant:**

This grant opportunity is focused on specialty crops such as fruits, vegetables, nuts, horticulture and nursery crops. (USDA AMS, 2019). This is specifically eligible for State Departments of Agriculture and is looking at areas of food safety, research, crop-specific issues, disease, or marketing and promotion.

**FSMIP: Federal-State Marketing Improvement Program:**

Explores new market opportunities for U.S. food and agriculture products, including research and innovation for efficiency and performance of agricultural marketing systems. Available for state departments of agriculture, agriculture experimentation stations, university and colleges, and other state agencies. (USDA)

**NOCCSP + AMA: National Organic Certification Cost-Share Program + Agricultural Management Assistance Cost Share Program:**

Only for those looking for offsetting organic certification costs. Must be an organic producer to be eligible for NOCCSP, and then should contact their state department of agriculture for requirements for reimbursement of up to 75% of their expenses. The USVI is not eligible for the Agriculture Management Assistance program.

**ERME: Extension Risk Management Education Center:**

USVI falls within the Southern Extension Risk Management Center region. The center offers competitive grant programs annually for different areas of risk (shown below). Grants range from $5,000 to $50,000. (Southern Extension Risk Management, n.d.)

- Production: weather, climate, disease, pests, crop insurance
- Marketing: marketing plans, contracts, sales, prices
- Financial: loans, financing, grants
- Legal: liability insurance, GAP, application certifications
- Human: labor, management, relationships, transition

**Cooperative Programs (USDA Rural Development):**

USDA Cooperative Programs develop educational reports and programs for understanding cooperative principles and practices, including agriculture and business classes as well as youth groups such as FFA and 4H. Financial assistance can be sought through Rural Development for support of cooperative businesses. (USDA Rural Development, 2019)

**Education opportunities:**

- Grant, loan, financial assistance support or technical skill development
- Educate on what technology can bring to the ag sector- this can be a viable food business
- There are different levels of education needed throughout the agriculture system. One need is through engagement of staff that work with farmers. Staff and support technical assistance need to be able to share the models of success for farm businesses and expose farmers to what is working well and is tested. Opportunities for this include site visits, webinars and on-farm field days.
- Demonstration plots/ see strategies that work best --> evidence based that motivates and inspire excellence
• There is a need for farmer education on sales and marketing strategies, as well as potential collaboration on wholesale sales options to meet the needs of larger businesses.

• Many farmers discussed the need for technical assistance and education. This included both education on access to resources, as well as production skills.

**Education**

Interest in advocacy and education on local food through the use of a “Virgin Island Fresh” or local branding element. Some of this has been tried through Farm To Grocery Store sales with USDA. Many individuals mentioned an interest in a directory of services, both for technical assistance and educational programs.

The Virgin Islands Good Food Coalition received a USDA AMS Farmers Market Promotion Program to support awareness of existing farmers markets and farms throughout the USVI territory.

Additionally, in the summer of 2020, state legislation created (an unfunded) mandate to host an annual Agricultural Caribbean Symposium, which could support the awareness of agricultural products throughout the territory.

**Virgin Islands Extension:**

Provides educational opportunities as well as technical assistance on farming practices. Workshops include Aquaponics Workshop and Program (Aquaponics Workshop, 2019) which shares information on Aquaculture production systems, includes vegetable and fish. Additionally, Extension provides an ag discovery camp for youth, pesticide trainings and certification, and cooperative development reflections. The annual ag fair is also a great way to learn about and see agricultural products within the territory. UVI also has an Agricultural Experiment States (AES) on St. Croix that has research for horticulture, agronomy, animal science and more.

**NRCS: Natural Resource Conservation Service**

There are various programs for the USVI to utilize from the Caribbean Area NRCS: (Natural Resources Conservation Service, 2019). This includes conservation innovation grants and stewardship programs; environmental quality incentives program; hurricane recovery, on-farm energy, organics, and high tunnel initiatives. There have currently not been any grants awarded to the USVI, however, Puerto Rico has received funding.

“NRCS recommends 4 principles for building healthy soils: (Creech, 2018): minimize soil disturbance, maximize soil cover, maximize biodiversity, maximize the presence of living roots

**Wellness**

Working with plants and the outdoors has been shown to have a direct connection with improved mental, physical and emotional health. While this can be shown in gardening directly at smaller scales, there are correlations with larger scale practices. However, stress can also be increased when considering farm finances and environmental stressors that are uncontrollable. It is important to have plans in place to ensure these stressors do not go unmanaged and turn into poor mental health for farmers. (Growing Alliances, 2017; Grinnell Mutual, 2019; Farm Stress Resource Team, 2019)

**Policy**

Extension Risk Management Agency has a Whole Revenue Protection Crop Insurance Policy that may be appropriate for the territory and could provide substantial support for diversified farms. However, it is currently not available in the territory (National Oceanic and Atmospheric Administration, 2018). This could be a policy advocacy component for organizations, farmers, etc. in the future.

Policies are important to understand for business opportunities. Many different local, territory and federal policies impact the USVI Territory. Locally, zoning districts may impact the ability to have agricultural property in certain areas of the islands.

Meat: There is need for additional education on polices and regulations around meat slaughter and processing. (Sarah, Scoops & Brews, 2019)
Establishment of Zoning Districts:
The Virgin Islands, consisting of the Islands of St. Thomas, St. Croix and St. John and all other islands within the jurisdiction of the Virgin Islands, are divided into eighteen (18) districts (not all of which are found on each of the Islands. (Office of the Code Revisor, Legislature of the Virgin Islands, 2019)

A-1 Agricultural District
A-2 Agricultural District
R-1 Residence—Low Density
R-2 Residence—Low Density
R-3 Residence—Medium Density
R-4 Residence—Medium Density
R-5 Residence—High Density
B-1 Business—Central Business District
B-2 Business—Secondary

B-3 Business—Scattered
B-4 Business—Residential Areas
C Commercial
I-1 Industry—Heavy
I-2 Industry—Light
W-1 Waterfront—Pleasure
W-2 Waterfront—Commercial—Industrial
P Public
S Special

Policies, including cease and desist orders on farm business properties have impeded business from recovering after the hurricanes. For agriculture practices to be supported and viewed as an economically viable option, policies will need to be in place that support agricultural opportunities across the territory. (Hugo, 2019)

Record keeping needs- many farmers currently do not practice consistent record keeping and therefore are unable to provide information on sales, expenses, and general data for their business decision making practices. When farmers then need loans, disaster support, etc. they are unable to provide the appropriate documentation to receive support. There is a strong need for an increase in the record keeping and business practices instituted for farmers.

Comments from producers regarding record keeping and land:

- Government owned land- allow to farm, but restrict on construction… so don’t have ability to build appropriately
- Too much politics play into our agriculture
- Don’t want anything ”too permanent”
- Government won’t commit to a homestead- but most farmers want to live on farm (50/50 on farm living)
- The current budget cannot develop the farm industry
- Housing options on farm can’t be concrete- recommendations from FEMA you should evacuate from farm during hurricane-because they have not built back shelters
- There is interest in developing a policy that will dedicate a portion of funds to local food development.

Homesteading/Housing of public farmland: (Office of the Code Revisor, Legislature of the Virgin Islands, 2019)
The Commissioner shall allow the lease holder of government property leased to farmers to construct a wooden structure or to put a trailer upon the leased premises. The Commissioner may not allow any masonry or similar type structure to be constructed on Government-leased farmland. All structures must be totally removed when a lease is expired or terminated, at the discretion of the Commissioner.

No poured foundations for structures and storage/utilities are allowed on Government leased farmland.

Nothing in this section relieves the lease holder from obtaining the necessary building permits required by the Department of Planning and Natural Resources.

Promotion of the Ag Industry:
The Department of Agriculture in an effort to promote sustainable agriculture shall collaborate with the Department of Education and the Board of Education to incorporate agricultural science courses in the curriculum at all grade levels, including kindergarten, by:

- providing agriculture programs, through the school system;
- providing significant opportunities of vocational education in agriculture; and
developing programs to counsel school dropouts and rehabilitation programs for juvenile delinquents, first-time criminal offenders, and those being released from the prison system by providing alternative programs, such as agricultural training camps and employment opportunities in the agricultural industry.

The Commissioner shall collaborate with the Department of Justice to create sustainable prison farms as a means of providing supplemental food to the prison and as an alternative means of rehabilitation in the prison system for the development of prisoners who are released into society.

The Commissioner, in conjunction with the University of the Virgin Islands and the Department of Education, shall establish programs that further assist in the development of future agriculturists who will provide for the continued sustainable development of an agriculture industry, and provide adequate training in agricultural sciences to grant agriculturists certification.

The Commissioner shall:
- Conduct a program of incentives through a cost-sharing program;
- Develop a program for assisting in the marketing of local agricultural products;
- Maintain adequate livestock health services;
- Develop a program, in conjunction with the University of the Virgin Islands Co-operative Extension Service, the Department of Education, and Department of Labor to encourage the processing of local agricultural produce and products;
- Develop a program to assure a source of supply of forage and other resources needed for the livestock industry; and
- Develop a program to make water available to farmers during times of drought (Office of the Code Revisor, Legislature of the Virgin Islands, 2019)

The Virgin Islands Fruit of Choice, Julie Mango

The policy supports the growth of Mango fruit trees on properties throughout the territory. The Department of Agriculture shall establish and implement the Julie Mango in Every Yard Program to encourage private residents of the Virgin Islands to dedicate a portion of their land for at least one Julie Mango Tree.

- The program established by the Department of Agriculture must provide financial incentive to Virgin Islands residents who grow Julie Mango trees in their yard through an established purchasing program that buys from each owner a percentage of their Julie mango tree harvest.
- The Department of Tourism shall assist the Department of Agriculture in promoting the Julie Mango in Every Yard Program locally and nationally to encourage productions by residents who live in the territory and owners of land in the Virgin Islands who live abroad. (Office of the Code Revisor, Legislature of the Virgin Islands, 2019)

Future dairy farms and milk plants:
- All future construction or extensive alteration of milk houses, milking barns, stables, parlors, transfer stations, and milk plants regulated under this chapter must meet certain minimum specifications and requirements, which the department shall establish by rule.
- Anyone who plans to construct a new milk house, milking barn, stable, parlor, or milk plant, or extensively alter any such existing facility, shall notify the department in writing of the intention to construct or alter, the date construction or alteration is to begin, and the legal description of the property for which the construction is planned.
- The minimum specifications in effect on the date of the original notification shall apply to the construction or alteration. If the construction does not meet these requirements and specifications, the department shall direct the owner to alter the construction to conform to them (Office of the Code Revisor, Legislature of the Virgin Islands, 2019)

Meat Standards:
- The standard for the inspection of live animals, carcasses and meat, and for judging their fitness for food and their disposal if infected shall be those prescribed by regulations issued by the Commissioner of Health.
- All meats or meat products stored, transported, offered for sale or sold in the Virgin Islands shall be subject to inspection and reinspection at any and all times by the Commissioner of Health. During transportation all meat and meat products shall be protected from insects, rodents, and other vermin, dust or other contamination. Meat markets, market stands, groceries and all other places in which meat and meat products are sold, offered for sale and stored shall conform to all of the requirements of sanitation as provided in regulations issued by the Commissioner of Health (Office of the Code Revisor, Legislature of the Virgin Islands, 2019)
Cultivation of Hemp:
The Commission shall develop recommendations on industrial hemp legislation and recommendations and legislation on the establishment and operation of a paper mill by the Government and annually thereafter report the recommendations to the Governor and to the Legislature’s standing committee having jurisdiction over agricultural matters, with respect to industrial hemp policies and practices that will result in the proper, legal, growing, management, use, and marketing of the Territory’s potential industrial hemp industry. (Office of the Code Revisor, Legislature of the Virgin Islands, 2019)

Industrial hemp production: (Office of the Code Revisor, Legislature of the Virgin Islands, 2019)

- Every licensee shall file with the Commissioner:
- documentation showing that the seeds planted are of a type and variety certified to contain no more than 0.3 percent tetrahydrocannabinol; and
- a copy of any contract to grow industrial hemp.
- Each licensee shall notify the Commissioner of the sale or distribution of any industrial hemp grown by the licensee, including, but not limited to the amount of industrial hemp sold at a given time.

The Commissioner and the University of the Virgin Islands shall promulgate regulations jointly for: (Office of the Code Revisor, Legislature of the Virgin Islands, 2019)

- Testing of the industrial hemp during growth to determine tetrahydrocannabinol levels;
- Supervision of the industrial hemp during its growth and harvest;
- Assessment of a fee that is commensurate with the costs of the Commissioner’s regulatory activities in licensing, testing and supervising industrial hemp production;
- Production and sale of industrial hemp which are consistent with the regulations of the United States Department of Justice, Drug Enforcement Administration for the production, distribution and sale of industrial hemp; and
- Any other regulations and procedures necessary to carry out the purposes of this subchapter.

Equity
Many residents and farmers spoke to the need to preserve culture and provide authentic foods in a sustainable manner throughout the territory. A specific farming practice that connects to equitable access to land and business opportunities, economics and general relationships throughout the territory involves a farm on St. John, Josephine’s Greens. Countless individuals shared their dismay about the way the business was being treated following the hurricane and abrupt policies that left the business receiving lack of support and closure.

There are issues of trust and ability to enter the farming arena. Trust concerns center around collaboration efforts for farmers to sell collectively to institutions. This is a concern, as many farms do not grow the quantity of products to meet retail and institutional demand.

There are also gaps in ability to purchase land or develop homesteads where individuals can live near or on farm property due to policy constraints through the Department of Agriculture.

Many individuals discussed racial trust barriers within the community.

Incubator and Beginning Farmer programs can provide ways for all individuals looking to get into agriculture to gain experience. This includes minority and underserved populations. Providing opportunities for new and younger generations to get into the farming field is another needed aspect to equity in this arena. A few concerns were stated during conversations in the territory regarding chauvinist attitudes and disregard for women; also a lack of listening and understanding of issues and concerns; women have a place and if they speak up you are troublesome; lack of support and authority to work together (St. Croix Farmer 4, 2018).
Recreational & Commercial Fisheries
Fisheries produce fish and other aquatic species for human consumption or for fish products. Fish are harvested for either commercial or recreational use or self-consumption. Commercial fishing is catching fish to sell, while recreational fishing can be either for the purpose of eating them, the sport of catching them, or both. Other aquatic species, such as mollusks and crustaceans are sometimes considered to be caught by “fishing” but are generally excluded from commercially stocked fish farms.

Fishing is defined as the process of catching fish or other living species from the wild, either for sustenance, as a business or for sport. Today, fishing is often broken down into saltwater fishing and freshwater fishing. Saltwater fishing can also include lobstering, clamming, crabbing, scalloping, oystering and other forms of catchment and harvesting.

In addition to recreational activity, fishing can also be considered a form of tourism. Fishing charters and tours are available and provide an economic benefit in many coastal locations.

Existing fishing and fishery businesses: many residents participate in nearshore or offshore fishing activities, and based on findings from the NOAA fishery report, appx. 40% of households engage in fishing and marine resources, 65% consume fish/seafood once a week or more, and 84% of fishers do not sell the fish that they catch (NOAA Fisheries, n.d.)

See Resource Management: Fish, Wildlife, Coastal and Reef Management

Fishery and fishing opportunities: While many residents participate in fishing, it is assumed, based on the NOAA report, that most residents still purchase their fish and seafood from supermarkets and other grocery retailers. There may be opportunities for increased local fishers to participate in this market based on seasonality and availability of product. It is difficult to track the exact number of fishers and sales as sales at markets and bartering are not tracked and recorded regularly.

Community Discussion:

Much of the discussion about fishing occurred around fishing for home use rather than for selling of product. However, from community input sessions several consumers stated that they relied on local fishers for the access to seafood, but had trouble finding available products. In addition, of the limited fishers spoken to, they also shared that there was a need for technical assistance around restrictions for fishing at Sandy Point and Buck Island, as well as access to equipment and educational programming.

Interviews:

fishing businesses as well as the development of a large fish farm and ocean farming for items like red snapper, trigger fish, and conch. (Hodge, 2019)

Infrastructure is needed for small fishing businesses in St. John; gas station, pump station, customs house (Colasacco, STJ Wellness, 2019)

Fishing is available everywhere, [but] why is it so hard to find fresh fish for residential use? We need access not just in restaurants

Environment
Currently the USVI imports appx 99% of its food. Fishers and farmers have an opportunity for selling direct to consumer, retail and wholesale. From a report is 2008, the University of Virgin Islands Agriculture Experimentation Center demonstrated tilapia and lettuce production, with 75,000 pounds of tilapia produced. Similarly, FarmPod and other technology based indoor-farming operations have included fish in their growing habitats.
In addition to indoor growing options, there is also interest in ocean-based small fishing businesses as well as the development of a large fish farm and ocean farming for items like red snapper, trigger fish, and conch.

Ensuring that existing reefs are protected and also the potential to develop man-made reefs may be of interest. This could in turn create dive spots for tourism industry.

Coastal management for fisheries and fishing opportunities is critical in the Virgin Islands.

- 175 miles of coastal area (Office for Coastal Management National Oceanic and Atmospheric Administration, 2019)
- 106,405 individuals living in coastal population (Office for Coastal Management National Oceanic and Atmospheric Administration, 2019)
- The territory experiences 14 square miles of change between 2002 and 2010
  - Associated with pastures and grassland growing into scrub (Office for Coastal Management National Oceanic and Atmospheric Administration, 2019)
- Total value of reefs are related to tourism, recreation, amenity and coastal protection for fisheries
  - Value estimated at 187 million (Brander & van Beukering, 2013)

Climate:

- Temperatures are likely to increase by 1.4-2.6 degrees by 2050s
- Trends indicate the USVI will become drier throughout the year
  - This may increase the likelihood of wildfires as well as new constraints for production and general environmental resource management
- Rising sea levels will also impact the territory, which may lead to salinization of reservoirs in the territory
- Climate change will impact health of reef systems and their ability to support and recover after disturbances

The environmental impact of climate change will continue to dramatically affect both the built and natural conditions of the territory, impacting buildings, cities, and public lands. By 2050, 23 critical facilities and 13 miles of electric lines, as well as 199 structures throughout the territory will experience flooding due to sea level rise; which is expected to raise to 6 ft sea level increase by the end of the century, which will then impact roads additional structures and facilities. (Task Force Advisory Committee, 2018)

### Economy

Recreational and Commercial fishing occurs throughout the US Virgin Islands. Annual catch limits (amount that can be caught within a given year) and Accountability Measures (are triggered if the ACL is met) apply in Federal Waters. Fishing regulations in territorial waters by type of product can be found within the Commercial & Recreational Fishers’ Information Handbook from the USVI Department of Planning and Natural Resources, Division of Fish and Wildlife.
Table 52: Annual Catch Limits in Federal Waters (USVI Division of Fish and Wildlife, 2016)

<table>
<thead>
<tr>
<th>Species</th>
<th>St. Croix (catch limit by pounds)</th>
<th>St. Thomas/ St. John (catch limit by pounds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Queen Conch</td>
<td>50,000</td>
<td>0 (EEZ only)</td>
</tr>
<tr>
<td>Parrotfish</td>
<td>240,000</td>
<td>42,500</td>
</tr>
<tr>
<td>Snapper</td>
<td>102,946</td>
<td>133,775</td>
</tr>
<tr>
<td>Grouper</td>
<td>30,435</td>
<td>51,849</td>
</tr>
<tr>
<td>Angelfish</td>
<td>305</td>
<td>7,897</td>
</tr>
<tr>
<td>Boxfish</td>
<td>8,433</td>
<td>27,880</td>
</tr>
<tr>
<td>Goatfish</td>
<td>3,766</td>
<td>320</td>
</tr>
<tr>
<td>Grunts</td>
<td>36,881</td>
<td>37,617</td>
</tr>
<tr>
<td>Wrasses</td>
<td>7</td>
<td>585</td>
</tr>
<tr>
<td>Jacks</td>
<td>15,489</td>
<td>52,907</td>
</tr>
<tr>
<td>Sculps and Porgies</td>
<td>4,638</td>
<td>21,819</td>
</tr>
<tr>
<td>Squirrelfish</td>
<td>121</td>
<td>4,241</td>
</tr>
<tr>
<td>Surgeonfish</td>
<td>33,603</td>
<td>29,249</td>
</tr>
<tr>
<td>Triggerfish and Filefish</td>
<td>24,980</td>
<td>74,447</td>
</tr>
<tr>
<td>Spiny Lobster</td>
<td>107,307</td>
<td>104,199</td>
</tr>
</tbody>
</table>

Ocean-related industry also includes economic activities of ship and boat building, tourism and recreation and marine transportation. While not directly related to fishing, these are impact fishing opportunities.

Table 53: USVI Ocean Sector Economy- 2012 (NOAA Coral Reef Conservation Program, 2019)

Fishing is also an income generator throughout the territory Commercial reef and bottom fishery has trended down since 2005. (NOAA Fisheries, n.d.) Based on the NOAA report in 2019, there is research to indicate that there may be lost value in commercial fishing. The table below indicates harvest and income from 2005-2016.

<table>
<thead>
<tr>
<th>Year</th>
<th>Harvest (in metric tons)</th>
<th>Ex-vessel revenue (nominal dollars)</th>
<th>Ex-vessel revenue (constant 2015 dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>1,598,846</td>
<td>$8,348,929</td>
<td>$10,132,300</td>
</tr>
<tr>
<td>2006</td>
<td>1,767,249</td>
<td>$11,126,147</td>
<td>$13,080,786</td>
</tr>
<tr>
<td>2007</td>
<td>1,450,618</td>
<td>$8,754,643</td>
<td>$10,009,644</td>
</tr>
<tr>
<td>2008</td>
<td>1,487,858</td>
<td>$8,739,290</td>
<td>$9,620,675</td>
</tr>
<tr>
<td>2009</td>
<td>1,578,916</td>
<td>$8,949,982</td>
<td>$9,887,795</td>
</tr>
<tr>
<td>2010</td>
<td>1,166,359</td>
<td>$7,185,291</td>
<td>$7,810,085</td>
</tr>
<tr>
<td>Year</td>
<td>Fish Sold (lbs)</td>
<td>Revenue ($000)</td>
<td>Cost ($000)</td>
</tr>
<tr>
<td>------</td>
<td>----------------</td>
<td>----------------</td>
<td>-------------</td>
</tr>
<tr>
<td>2011</td>
<td>1,154,518</td>
<td>6,977,743</td>
<td>7,352,410</td>
</tr>
<tr>
<td>2012</td>
<td>712,604</td>
<td>4,683,566</td>
<td>4,834,990</td>
</tr>
<tr>
<td>2013</td>
<td>680,668</td>
<td>4,384,146</td>
<td>4,460,554</td>
</tr>
<tr>
<td>2014</td>
<td>545,697</td>
<td>3,423,974</td>
<td>3,428,038</td>
</tr>
<tr>
<td>2015</td>
<td>461,333</td>
<td>2,906,694</td>
<td>3,906,694</td>
</tr>
<tr>
<td>2016</td>
<td>592,166</td>
<td>3,974,705</td>
<td>3,925,188</td>
</tr>
</tbody>
</table>

Multiple options exist for fish sales throughout the territory: (DPNR, 2019)
- Fish sales to public as fresh fish and agricultural products (allowed at fish markets, butcher stalls and public streets)
- Local/native seafood: if selling fish or seafood as local or native which is not local, it is a misdemeanor
- Sale of seafood by non-residents: if selling seafood as non-resident, fisher must follow same rules, laws and regulations
- Seafood caught outside territory: must follow regulatory requirements for harvesting of domestic species; and may not be able to import Caribbean Spiny Lobster with less than 6 ounce tail weight
- Conch imports: Conch is protected as an endangered species and federal laws prohibits imports or exports unless there has been regulatory authority and it is sold through federally designated port

Education

NRCS: Natural Resource Conservation Service

“NRCS recommends 4 principles for building healthy soils: (Creech, 2018)
- Minimize soil disturbance
- Maximize soil cover
- Maximize biodiversity
- Maximize the presence of living roots

There are various programs for the USVI to utilize from the Caribbean Area NRCS: (Natural Resources Conservation Service, 2019). This includes conservation innovation grants and stewardship programs; environmental quality incentives program; hurricane recovery, on-farm energy, organics, and high tunnel initiatives.

- Aquaponics Workshop and Program, University of Virgin Islands Cooperative Extension (Aquaponics Workshop, 2019)

The St. Thomas Recovery Plan states the need for Local Food Promotion Program: provides technical assistance on longer term crop storage, irrigation, pest management, marketing/distribution, record keeping, grading of fresh produce, and sustainable soil management. (Community Foundation of the U.S. Virgin Islands, 2018)

Numerous resources (brochures, posters, books, tools) exist through the Department of Planning and Natural Resources that can be found at Department of Fishing and Wildlife offices:

Division of Fish and Wildlife:
6291 Estate Nazareth, St. Thomas, VI 00802; (340) 775-6762
45 Mars Hill Complex, Frederiksted, St. Croix, VI 00840; (340) 773-1082

Division of Environmental Enforcement:
Charles W. Turnbull Public Library, 4607 Tutu Park Mall, St. Thomas, VI 00802; (340) 774-3320
6003 Anna’s Hope, Christiansted, St. Croix, VI 00821; (340) 773-5774

Wellness

The USVI Division of Fish and Wildlife deploys fish aggregating devices (FAD) throughout the waters of USVI, both submerged and surface level. These devices attract small fish to the different buoys, and thus attract larger sport fish as well, reducing the effort, time and money for anglers. The FADs also generate new habitat for the fish and benefit inshore fisheries by shifting fishing pressure off the coast. (Department of Planning and Natural Resources Division of Fish and Wildlife, 2018)

Policy

Commercial & Recreational Fishers Information Handbook
USVI is comprised of Federal and State waters; for federal water regulations contact National Marine Fisheries Service: NOAA Fisheries Southeast Regional Office- 727.824.5305 (DPNR, 2019)

The Department of Planning and Natural Resources supports conservation and management of fisheries, including enforcement of boating and fishing regulations (Title 12 Conservation, Title 25 Navigation, and Boating Safety Act 1972)

Recreational Fishing

“Recreational Fishing, or fishing activities which result in the harvest of the fish, none of which is sold, traded or bartered” (Department of Planning and Natural Resources Division of Fish and Wildlife, 2018)

- Individual anglers must apply for license as visitor or resident for charter, fishing on private vessel and fishing ashore (DPNR, 2019)- to apply for a license: http://usvifishinglicense.org/register
- Recreational fishers are requested to report catches, but are voluntary; guides on identifying fish can be found at: https://dpnr.vi.gov/fish-and-wildlife
- For general rules for fishers, see Commercial and Recreational Fishers Informational Handbook
  - All fishing vessels must be registered (DPNR, 2019)
  - If fishing outside USVI waters, be aware of British Virgin Islands and Puerto Rico regulations and fishing laws
- No commercial fishing is permitted in Altona Lagoon and Great Pond- St. Croix – if fishing, a one-year permit/ $10 is required; purchased through Division of Environmental Enforcement in St. Croix
- St James Reserve & Wildlife Sanctuary – permit is required to collect baitfish –
  - line fishing permit- $2/ month;
  - bait fishing $5/month
- Cas Cay/ Mangrove Lagoon Marine Reserves- St. Thomas – bait fishing $5/month (up to 2 months)
- Virgin Islands National Park- does not allow for anchoring and has separate regulations; no commercial fishing; only fishing using rod or reel is permitted; traps may be used if of USVI conventional design and not larger than five feet; baitfish may be taken by nets of no longer than 20 feet
  - No fishing permitted within swim zones, when tied to mooring ball or from NPS Red Hook Dock or Cruz Bay Pier & Bulkhead
- Buck Island Reef National Monument: all fishing is prohibited
- Limetree Bay Restricted Area, St. Croix: no vessels may enter restricted area

After fishing, you must report your catch for both recreational and commercial fishers. Physical catch reports are available at the Division of Fish and Wildlife and can be dropped at the office, emailed, or submitted through a digital form.

Commercial Fishing

Commercial fishing- all commercial fishers must have a license to fish and sell, trade or barter product. A commercial fishing license can be transferred from the Department of Fisheries and Wildlife and is reviewed by the Fisheries Advisory Committee.

In addition, any person fishing or possessing Bigeye, Albacore, Skipjack, Yellowfin, and Bluefin Tuna must have a federal fishing permit. Owners of commercial fishing vessels must pay a registration tax of $25 - $200 depending on length of boat. Additionally, a valid business license, registration fees, are required. Similar to recreational fishing, commercial fishing must report catches through the Division of Fish and Wildlife. Fishing catch reports will be provided during fishing registration. (DPNR, 2019) During registration, commercial fishers will receive report forms with instructions on reporting their catch (with options for electronic reporting).

The policies for the USVI and licensing do not apply to British Virgin Islands or Puerto Rican waters. Each (BVI and Puerto Rico) have their own fishing laws and regulations.

Anchoring and fishing are prohibited in the Virgin Islands Coral Reef National Monument, Buck Island Reef National Park and Limetree Bay Restricted Area. Bait fishing is allowed in Hurricane Hole, and fishing for blue runner (hardnose) is only permitted in designated locations near Cabritte Horn Point. Each activity requires a permit from the National Park Service (Department of Planning and Natural Resources Division of Fish and Wildlife, 2018).
Fishing regulations in territorial waters by type of product can be found within the Commercial & Recreational Fishers’ Information Handbook from the USVI Department of Planning and Natural Resources, Division of Fish and Wildlife.

Public Fish Markets:
- All public fish markets in the United States Virgin Islands heretofore established under the jurisdiction of the Department of Agriculture are hereby transferred to and continued without interruption within the Department of Conservation and Cultural Affairs.
- The Commissioner of Conservation and Cultural Affairs is authorized to establish a schedule of reasonable fees for the use of the facilities and to issue appropriate rules and regulations in the manner provided by law to govern the use of the fish markets (Office of the Code Revisor, Legislature of the Virgin Islands, 2019).

Blue Economy:
- The Division of Economic Research of the Office of Management and Budget, the Virgin Islands Department of Planning and Natural Resources, and the Virgin Islands Economic Development Authority has enacted a plan to assist the Virgin Islands in “developing a sustainable blue economy” (Thirty Third Legislature of the Virgin Islands, 2020)
  - Select qualities of Blue Economy
    - Sustainable use of ocean resources for economic growth, livelihood and ocean ecosystem
    - Ocean industries, fisheries, tourism, transportation, renewable energy, aquaculture, seabed activities, maritime biotech
    - Food security, poverty eradication, improved livelihoods, employment, health and safety
    - Productivity, resilience, value
  - Governed by public and private processes
  - Allows for new businesses to open in territory relating to aforementioned qualities
  - A Plan to assist USVI in blue economy through planning for must be submitted by May 2021 and include:
    - Economic viability of blue economy
    - Financial needs for implementation
    - Direct and indirect opportunity results
    - Steps for developing blue economy
    - Assist in blue economy concept
    - Assistance in federal funding to assist with implementation

Equity:
Fishing offers new ways of providing food for one’s family and can support self-sufficient lifestyles. Also, based on how policies and access points are developed throughout a region, there may be more equitable approaches to allowing for all individuals to fish through different rights to water access, fees for permits and licenses, etc.
Transformation + Processing

This section provides an overview of community projects, programs, businesses, that involve the transformation of raw ingredients, physically or chemically, into a value-added product which may include fresh cut or lite-processing, butchering, freezing or canning.

The St. Croix abattoir is the only operating meat slaughtering/processing facility in the territory. There is a second abattoir facility on St. Thomas that is currently closed. However, the abattoirs focus on slaughtering and have little capacity to break down meat products. Infrastructure is needed to fill this gap. Besides the abattoirs, there are businesses that break down retail cuts of meat, but these are operating on a smaller scale. Meat processing facilities on more than one island would lessen the current financial and time burden for farmers territory wide who are having to transport their livestock to the St. Croix abattoir. Mobile processing units are an opportunity for on-farm processing which would lessen the transportation of livestock to be slaughtered and processed. Additionally, there is a need for more meat inspectors for the territory to help with sanitation inspections. The St. Croix abattoir is the only FSIS (Food Safety and Inspection Service) inspected facility in the territory at this time. The FSIS is an agency of USDA that is responsible for making sure the commercial supply of meat, poultry, and egg products is safe and correctly labeled and packaged for the U.S. (Service, USDA Food Safety and Inspection, 2019).

There are no specialty crop processing facilities in the territory. It has been expressed that processing is needed for a variety of crops for value-added opportunities. For example, processing of breadfruit is being done for production of alcohol but may benefit from additional on-island processing to break down the breadfruit. There are three alcohol production facilities and four breweries within the territory. Rum and breadfruit vodka are large opportunities for the processing of sugarcane and breadfruit. Sugar cane processing could increase the capacity to grow and sell the product on-island instead of importing the sugar cane from other locations. Breweries are using products such as lemongrass, of which there has been an expressed need for additional processing opportunities. It has also been expressed that processing is needed for the “Every Yard Program” to create value-added products from Julie Mangos. Local processing of crops leading to more value-added and local products, keeping dollars local and reducing the potential negative environmental impacts of imported food.

While there are no specialty crop processing for food consumption, breadfruit processing for Mutiny Vodka has become a unique opportunity for the USVI and Caribbean region. Potentials for farmers to produce and sell breadfruit for use in Mutiny Vodka could support viable business options for producers.

Shared-use kitchens are a way for producers to be able to process their products into value-added opportunities. While there are currently no shared-use kitchens in the territory, there has been a location identified on St. Croix that would have the infrastructure and capacity to implement a shared-kitchen space. Shared-use kitchens offer options for businesses to start or grow without needing to have all the capital up front. They can also be used for cooking and nutrition education, licensing, and teaching regulations for food businesses. Access to shared-use kitchen facilities pre-climatic event, would allow for food crop preservation (canning, freezing, value-added) opportunities, creating a more reliable food source during- and post-weather. Crops that survived and recovered well after the hurricanes included coconut trees, root crops, gourds, bananas, lemongrass and other herbs, moringa, noni, papaya and mango (Focus Group, 2018).

There is no longer diary processing in the territory. Policies have been put into place that make it difficult for infrastructure for future dairy farms and milk processing to be built, however there is capacity in dairy livestock numbers for there to be a need for processing.

Last, access to processing facilities pre-weather event would allow for more reliable access to food if sources are low. Value-added products are more easily stored and have a longer shelf-life than raw product. Additionally, if ports or other interisland transportation are damaged due to weather conditions, having processing facilities on more than one island would potentially allow livestock producers and fruit and vegetable producers to resume business more quickly.
**Processing Facilities**

Processing facilities allow for raw food products (meat, dairy, fruit and vegetables, etc.) to be physically or chemically altered into value-added forms. This may include but is not limited to new product development through canning, freezing, drying; breaking down of livestock, fish, or other live animals for retail sales; dairy product development for milk, cream, cheese, etc. Processing offers a way for farmers, fishers and producers to add-value to their product. This can be a large investment to process individually and typically involves several forms of certifications and licenses.

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**Existing sites:** There are two Abattoirs within the territory, both managed by the Department of Agriculture. One on St. Croix, which has been open since the hurricanes. A second on St. Thomas is currently closed and is going through repairs. Annaly Farms on St. Croix provides customers with custom cuts of meat and Plaza Extra East and Cost U Less can process retail cuts of meat in their spaces. Additionally, there are distillers and alcohol processors such as Mutiny, Cruzan, and Captain Morgan on St. Croix that contribute to the processing sector. There are also four breweries within the territory: Leatherback Brewing, Rock City Brewing, St John Brewers and Frenchtown Brewing Company.

**Processing facility opportunities:**
The St. Croix Abattoir on St. Croix is used for livestock slaughtering, however there is a processing room on site that could potentially become available to break down livestock and for other processing opportunities (Symmons, 2019). There is an Abattoir on St. Thomas, however, it has been closed for repairs since the hurricane in 2017. This is expected to re-open in fall 2019.
There are no existing dairy or fruit and vegetable processing facilities in the territory, this has been discussed as a need for processing on St. Croix and St. Thomas. There may be opportunities for both shared-use kitchen space to trial value-added product development for food entrepreneurs, as well as larger processing facilities for crops that can be grown at a scale to create a consistent product for market, such as canned goods, flash frozen items, etc. that can then be sold within groceries and retailers.

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**Community Discussion:**

Community discussion around processing typically reflected animal and meat processing. However, there may be options for fruit and vegetable processing that can assist with season extension and availability of local products for consumers. Products could be processed and kept fresh through light-processing methods, or could also be frozen, canned, dried, etc. for additional storage and shelf-life options.

**Interviews:**

*Need for more training and understanding of regulations (Symmons, 2019)*

*Would like to see a way to rent out the processing space at the abattoir to break down livestock. Processing room on-site not currently available—what is the cost/benefit analysis for adding processing opportunities on-site (Symmons, 2019)*

*Need for additional processing after going through a Department of Ag facility (Symmons, 2019)*

*Using the abattoir will help expand the local offerings—abattoir would allow space for cutting local meat to sell in store—would like to use the abattoir once a week to cut local meat and fish (Stewart, 2019)*

*About $800 each way from St. Thomas to take animals on barge to abattoir in St. Croix, would like to have facilities in Bordeaux because the land is already here (Food, 2019)*

*Processing facility needs for Every Yard Program for the Julie Mango, hemp, and lemongrass (Hodge, Jr., 2019)*

*Need processing for breadfruit—milling and dehydration (Manley, 2019)*

*Have talked about mobile processing/slaughter units—right now the animals barge over and get a day or two to hang out before slaughter (Symmons, 2019)*

*There needs to be education in the field of processing and food science…how to properly get product into the market (Focus Group, 2018)*
Environment:
Local, value-added processing facilities can lessen the amount of transportation of food which could potentially increase the freshness of the product to the consumer. In addition, having more local facilities can potentially reduce the amount of waste produced through actual processing and transportation of products. (Dickenson, Joseph, & Ward, 2013)

No processing facilities currently operate on St. Thomas or St. John; however, the Department of Agriculture is working to repair the abattoir on St. Thomas to ensure that slaughter can. Livestock processing opportunities for producers on St. Thomas and St. John may reduce the amount of livestock transportation to St. Croix creating less negative impact on the environment. There are no existing dairy, fruit or vegetable processing facilities in the territory.

Access to processing facilities pre-storm is an opportunity for resilience for farmers to have access to mobile processing units or processing facilities to process for product on site and for storage in mass quantities. If ports or other interisland transportation are damaged due to weather conditions, having slaughter and processing facilities on more than one island could improve the ability for economic return for livestock and fruit and vegetable producers. Trends in livestock are shown below.

<table>
<thead>
<tr>
<th>Cattle and Calves: (USDA, 2009)</th>
<th>Total # of farms 2002</th>
<th>Total # of farms 2007</th>
<th>Total # of head 2002</th>
<th>Total # of head 2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>St. Croix</td>
<td>47</td>
<td>19</td>
<td>2,165</td>
<td>708</td>
</tr>
<tr>
<td>St. Thomas</td>
<td>St. John</td>
<td>9</td>
<td>6</td>
<td>58</td>
</tr>
<tr>
<td>Virgin Islands Territory</td>
<td>25</td>
<td>56</td>
<td>2,223</td>
<td>776</td>
</tr>
<tr>
<td>Goats and Kids: (USDA, 2009)</td>
<td>Total # of farms 2002</td>
<td>Total # of farms 2007</td>
<td>Total # of head 2002</td>
<td>Total # of head 2007</td>
</tr>
<tr>
<td>St. Croix</td>
<td>30</td>
<td>39</td>
<td>615</td>
<td>476</td>
</tr>
<tr>
<td>St. Thomas</td>
<td>St. John</td>
<td>11</td>
<td>22</td>
<td>160</td>
</tr>
<tr>
<td>Virgin Islands Territory</td>
<td>41</td>
<td>61</td>
<td>775</td>
<td>641</td>
</tr>
<tr>
<td>Hogs and Pigs: (USDA, 2009)</td>
<td>Total # of farms 2002</td>
<td>Total # of farms 2007</td>
<td>Total # of head 2002</td>
<td>Total # of head 2007</td>
</tr>
<tr>
<td>St. Croix</td>
<td>20</td>
<td>17</td>
<td>471</td>
<td>733</td>
</tr>
<tr>
<td>St. Thomas</td>
<td>St. John</td>
<td>5</td>
<td>9</td>
<td>540</td>
</tr>
<tr>
<td>Virgin Islands Territory</td>
<td>25</td>
<td>26</td>
<td>1,011</td>
<td>1,218</td>
</tr>
<tr>
<td>Poultry: (USDA, 2009)</td>
<td>Total # of farms 2002</td>
<td>Total # of farms 2007</td>
<td>Total # of head 2002</td>
<td>Total # of head 2007</td>
</tr>
<tr>
<td>Chickens</td>
<td>3</td>
<td>4</td>
<td>-</td>
<td>570</td>
</tr>
<tr>
<td>St. Thomas</td>
<td>St. John</td>
<td>4</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>Virgin Islands Territory</td>
<td>7</td>
<td>7</td>
<td>-</td>
<td>1,688</td>
</tr>
<tr>
<td>Turkeys, Ducks, Geese, Other</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>St. Croix</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>St. Thomas</td>
<td>St. John</td>
<td>3</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Virgin Islands Territory</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 54: Livestock production numbers in the territory (USDA, 2009)

Economy:
Existing processing facilities are located on St. Croix making it expensive and time consuming for livestock farmers on St. Thomas and St. John to process their products. The St. Croix Abattoir is interested in looking at the cost/benefit analysis for adding processing opportunities on-site. It was estimated that producers on St. Thomas are paying about $800 each way to transport livestock on a barge to the abattoir in St. Croix. Having the opportunity to both slaughter and process livestock in one location or a processing facility in closer proximation to farms on St. Thomas and St. John could reduce transportation costs for producers making it more financially viable to raise livestock.
Livestock slaughter numbers are shown below for the St. Croix Abattoir in 2018 and the first half of 2019 (Symmons, 2019). This represents the capacity for additional processing facilities in the territory.

<table>
<thead>
<tr>
<th>Livestock Slaughtered</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheep</td>
<td>182</td>
<td>217</td>
</tr>
<tr>
<td>Goats</td>
<td>77</td>
<td>24</td>
</tr>
<tr>
<td>Cattle</td>
<td>62</td>
<td>39</td>
</tr>
<tr>
<td>Swine</td>
<td>319</td>
<td>98</td>
</tr>
</tbody>
</table>

Table 55: Slaughter Numbers by Unit: provided by Sarah Symmons- Department of Agriculture (year of 2018 and half of 2019)

Businesses are required to obtain a retail food license or food processing plant license to make or sell food to the public. Independent processing centers and slaughterhouses can help establish economic growth and opportunities for individual producers and farmers to access a means to process smaller quantities of product at a reasonable cost.

Fruit, vegetable and dairy processing may allow for value-added products to enter markets keeping food dollars local.

**Education:**
A need for more training and understanding of processing regulations for producers in the territory has been identified as well as awareness of processing facility locations and regulation procedures.

**Wellness:**
A need for access to fresher foods has been identified. Local processing facilities diminish the amount that food travels. Closely monitored food safety and animal welfare protocols are required for processing facilities to ensure food is safe to eat.

Awareness of where food is coming from has also been identified as an area of interest. Local processing facilities can create more transparency of where food comes from. Packaging for locally sourced and processed products are encouraged to express their locality on food labels to allow consumers to have more understanding and control of what they are purchasing. Consumers are starting to become more influenced by wellness when purchasing food and are placing a higher value on locally sourced products, which is drawing attention to the farm to table process for both produce and meat (Liana, Radam, & Rusli Yacob, 2010).

**Policy:**
Promotion of the Agricultural Industry legislation states that, “The Commissioner shall…develop a program, in conjunction with the University of the Virgin Islands Co-operative Extension Service, the Department of Education, and Department of Labor to encourage the processing of local agricultural produce and products” (Office of the Code Revisor, Legislature of the Virgin Islands, 2019).

Current and future processing facilities must meet inspection requirements. Meat Standards legislation states that, “The standard for the inspection of live animals, carcasses and meat, and for judging their fitness for food and their disposal if infected shall be those prescribed by regulations issued by the Commissioner of Health. All meats or meat products stored, transported, offered for sale or sold in the Virgin Islands shall be subject to inspection and reinspection at any and all times by the Commissioner of Health. During transportation all meat and meat products shall be protected from insects, rodents, and other vermin, dust or other contamination. Meat markets, market stands, groceries and all other places in which meat and meat products are sold, offered for sale and stored shall conform to all of the requirements of sanitation as provided in regulations issued by the Commissioner of Health” (Office of the Code Revisor, Legislature of the Virgin Islands, 2019).

In 2002 there were four dairies in the territory but have all closed. There are now strict policies on bringing dairy to the territory.

Future dairy farms and milk plants:

- All future construction or extensive alteration of milk houses, milking barns, stables, parlors, transfer stations, and milk plants regulated under this chapter must meet certain minimum specifications and requirements, which the department shall establish by rule.
- Anyone who plans to construct a new milk house, milking barn, stable, parlor, or milk plant, or extensively alter any such existing facility, shall notify the department in writing of the intention to construct or alter, the date construction or alteration is to begin, and the legal description of the property for which the construction is planned.
- The minimum specifications in effect on the date of the original notification shall apply to the construction or alteration. If the construction does not meet these requirements and specifications, the department shall direct the owner to alter the construction to conform to them (Office of the Code Revisor, Legislature of the Virgin Islands, 2019)

**Equity:**
Mobile processing facilities can provide more access to processing opportunities for small-scale and beginning farmers. In general, processing facilities can create more opportunities for farmers and what they produce if they have a space to prepare product for retail markets. This can lead to farmers being able to scale-up and diversify their operations.
Shared-use Kitchens

Shared-use kitchens enhance local and regional food businesses by offering commercial kitchens for public use. Shared-use kitchens can bridge a full range of issues in the local food system, including access to healthy foods. Shared-use kitchens, provide comprehensive and diverse approaches to offering opportunities to produce value-added product, and cook from a shared-location to create a self-financed, sustainable business model. Many of these programs work hard to include shareholder loyalty by including options to purchase memberships or rent out space. This strategy builds a market base and assists in community capacity and financial sustainability. In addition, many shared-use kitchens also offer community support through processing food donations.

There are currently no shared-use kitchens in the territory.

**Shared-use Kitchen opportunities:**

Bethlehem Sugar Factory on St. Croix was identified as a potential location for a shared-use kitchen facility. The existing 9000 square foot building includes a 1-million-gallon water storage tank on the property and a 300,000 gallon water storage cistern. The property also includes 40 acres of land used for coconut and mango production. (Edwards, 2019)

There may be other potential locations for incubator business operations or shared-use kitchens within areas of the economic development park or sites on St. Thomas and St. Croix. A feasibility study and impact assessment would be needed to confirm the potential for this type of organization, as well as capacity for food entrepreneurs to access space. Questions to consider for this type of organization include:

- What businesses or individuals currently need access to space for processing?
- Will individuals want to sell the product they create in retail settings, or only process for home consumption?
- How much space is needed?
- What equipment needs are mandatory and optional? /
- Who will manage the space?
- What will rent cost for the users of the kitchen?
- What are the food safety licensing and regulations that are required for both the space and organization utilizing the space?
- What is the overall vision and purpose of the shared-space?

**Community Discussion:**

Shared-use kitchens were brought up within community input sessions, and while there is some interest, this was not a top priority for communities. However, these types of businesses can assist with technical assistance for offering space for beginning food entrepreneurs to trial out new products and have access to equipment and storage. They can also support in increasing the availability of local food depending on the business structure of the Shared-Use kitchen site.

St John has determined the following implementation steps in their recovery plan: (FEMA, 2018)

- analysis on food security
- support churches for development of food banks/ kitchen sites

**Interviews:**

A future goal for the Bethlehem Sugar Factory, St. Croix is a certified shared-use kitchen. There is already a 9000 square foot warehouse building on property, and the space could be used in community with multiple stations for processing, packaging, storage (cooler/freezer) and working with value-added products/crops. 10 greenhouses for aquaponics (tilapia and lettuces) will be built on property roughly in the next few months, signed agreement with Fresh Ministries (Edwards, 2019).

There is a need for food to be accessed faster, be of better quality, healthier, and fresher (Colasacco, STJ Wellness, 2019)
Processing facility needs for Every Yard Program for the Julie Mango, hemp, and lemongrass (Hodge, Jr., 2019)

A community kitchen is needed for crops that are ready to be prepped and stored before storms (Focus Group, 2018)

Environment:
Bethlehem Sugar Factory on St. Croix was identified as a potential location for a shared-use kitchen facility. The existing 9000 square foot building includes a 1-million-gallon water storage tank on the property and a 300,000 gallon water storage cistern. The property also includes 40 acres of land used for coconut and mango production.

Concerning the natural environment, shared-use kitchens can promote locally grown products by providing opportunities for local processing. In turn, local processing shortens the supply chain of value-added products which decreases food miles travelled as well as the carbon footprint of meals (A Shared-Use Community Commercial Kitchen).

Resilience: Access to shared-use kitchen facilities pre-weather could allow for food crop preservation (canning, freezing, value-added) opportunities, creating a more reliable food source during- and post-weather. Crops that survived and recovered well after the hurricanes included coconut trees, root crops, gourds, bananas, lemongrass and other herbs, Meringa, noni, papaya and mango (Focus Group, 2018).

Economy:
Shared-use kitchens can build community capacity to create new economic development in the form of new food businesses. This is done by reducing start-up costs and overhead and creating job growth. They can also provide scaling-up opportunities and product diversification options for existing businesses. Providing these opportunities for businesses can also help keep dollars local (Meader McCausland, Miller, Colpaart, & King, 2018; Rajeendra, 2016).

St. Croix Farmers In Action see opportunity in the Bethlehem Sugar Factory space for a future certified community kitchen for packing, dehydration and slicing. The building has space for multiple units of shared-use kitchens or processing spaces that multiple businesses could use to create value-added products. Opportunity for a business incubator program in the space was also identified. Incubator programming in shared-use kitchens allow opportunity for new and existing food businesses to grow by providing technical assistance with branding, packaging and business plans.

There are models for incubator programming that exist in the Virgin Islands. An existing incubator program has been developed and provided by U.S Virgin Islands Economic Development Authority. “The Incubator Program is designed to help new and start-up businesses develop into full-fledged businesses by providing management training and other assistance enabling these businesses to grow and contribute to the economic development of the Territory” (U.S. Virgin Islands Economic Development Authority, 2018). The table below describes the number of entrepreneurs that were assisted and the number of startup businesses that developed into permanent businesses in 2017-2018 and the projections for 2019.

**Incubator Program Outputs and Projections**

<table>
<thead>
<tr>
<th>Key Performance Indicators (KPI)</th>
<th>Actual FY 17</th>
<th>Target FY 18</th>
<th>Actual FY 2018 (as of 3/31/18)</th>
<th>Planned FY 19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of entrepreneurs assisted</td>
<td>30</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Number of businesses developed into full-fledged businesses</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 56: Incubator Program Outputs and Projections (U.S. Virgin Islands Economic Development Authority, 2018)

Education:
During focus groups held in 2018 many farmers stated there was a need for value-added production workshops value-added kitchen spaces.

Shared-use kitchens can offer demonstrations and educational space to teach various culinary practices. These typically include hands-on programming for participants to learn about nutrition, cooking fundamentals and cultural identity of food. There can also be offerings for users to learn about food safety, nutrition, and business strategies and development. Some kitchens partner with local high schools,
colleges and universities to provide such programming, as well as mentoring opportunities and technical skill building for entrepreneurs (Meader McCausland, Miller, Colpaart, & King, 2018; Rajeendra, 2016; Topaloff, 2014).

Wellness:
A need for access to fresher foods was identified. Shared-use kitchens can support this by providing space and resources to process local foods and create value-added products.

Shared-use kitchens can increase community wellness by supporting the processing of fresher, less processed foods. They can also offer diverse programming relating to community health such as cooking classes, demonstrations and food education. Such programming can increase positive social interactions between community members, decrease consumption of meals away from home and increase personal health practices for those who participate. (A Shared-Use Community Commercial Kitchen; Roadmaps, 2018).

Policy:
Processing for the Virgin Island’s Fruit of Choice program was identified as a need in the territory. Virgin Island’s Fruit of Choice program established by the Department of Agriculture provides financial incentive to Virgin Islands residents who grow Julie Mango trees in their yard through an established purchasing program that buys from each owner a percentage of their Julie mango tree harvest. In addition, the Department of Agriculture shall establish and implement the Julie Mango in Every Yard Program to encourage private residents of the Virgin Islands to dedicate a portion of their land for at least one Julie Mango Tree. (Office of the Code Revisor, Legislature of the Virgin Islands, 2013)

Regarding policies on the use of shared-use kitchens, tenants of are required to follow regulations set at the federal level all the way down to specific policies set by individual kitchens. Federal regulations are set by USDA and the FDA and include regulatory programs such as the Food Safety Modernization Act training and programs that regulate allergen free-label requirements. Kitchens can also require their tenants to obtain certain certifications and licenses before they are able to use the space. Most shared-use kitchens will require tenants to sign a contract to ensure they are adhering to federal regulations and specific policies set by the kitchen (Topaloff, 2014; Labeling News, 2017).

Equity:
Shared-use kitchens can provide community members with access to infrastructure, resources and collaborative space. Some shared-use kitchens work exclusively with low-income or marginalized tenants. By breaking down barriers to essential amenities for food businesses, they create more community access to local, healthy, and fresh foods year-round. Greater access to these kinds of foods can create increased local food security and hunger alleviation in the community (Conover, Rubchinuk, Smith, & Cortez, 2015; Danovich, 2016; A Shared-Use Community Commercial Kitchen).
Food Enterprise Centers
Food enterprise centers build businesses through entrepreneurial investments in local food, approaching scaling up the food system through a self-financed, sustainably profitable model. Food enterprise centers are focused on positive cash flow, food, local ownership and local control. Many of these programs work hard to include shareholder loyalty by including options to buy into the company or provide memberships. This strategy builds a market base and assists in community capacity and financial sustainability. In addition to community support, typical businesses also devote time to give back to the community through good stewardship of the land, sustainable waste management, and affordable food programs.

There are currently no enterprise centers in the territory.

Food Enterprise Center site opportunities: Similar to the concept of Shared-Use Kitchens, adding elements that promote business development and entrepreneurship could benefit processing space. Bethlehem Sugar Factory, St. Croix may be an existing facility that could operate as a food enterprise center with a component of shared-use kitchen access. Potential questions to consider in developing a food enterprise center include:

- How many businesses should operate within the space?
- What types of products should be developed?
- What is the business model for the organization managing the site?
- How will funding work for both infrastructure and management?

Interviews:

We need to promote the ag industry, people grow vegetables on their porches/balconies in pots-potential to generate revenue (Edwards, 2019)

Believe there is land and people to buy-in and grow sugar cane on island for rum industry (Edwards, 2019)

Environment
Bethlehem Sugar Factory on St. Croix was identified as a potential location for a food enterprise center. The existing 9000 square foot building includes a 1-million-gallon water storage tank on the property and a 300,000-gallon water storage cistern. The property also includes 40 acres of land used for coconut and mango production.

Economy
There are models for incubator programming that exist in the Virgin Islands. An existing incubator program has been developed and provided by U.S Virgin Islands Economic Development Authority. “The Incubator Program is designed to help new and start-up businesses develop into full-fledged businesses by providing management training and other assistance enabling these businesses to grow and contribute to the economic development of the Territory” (U.S. Virgin Islands Economic Development Authority, 2018)

Below is a table that shows the number of entrepreneurs that were assisted and the number of startup businesses that developed into permanent businesses in 2017-2018 and the projections for 2019.

<table>
<thead>
<tr>
<th>Key Performance Indicators (KPI)</th>
<th>Actual FY 17</th>
<th>Target FY 18</th>
<th>Actual FY 2018 (as of 3/31/18)</th>
<th>Planned FY 19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of entrepreneurs assisted</td>
<td>30</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Number of businesses developed into full-fledged businesses</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 57: Incubator Program Outputs and Projections (U.S. Virgin Islands Economic Development Authority, 2018)
Education
Training opportunities for workforce in food systems. Workforce development programming in the territory is offered by the Restoring Futures | National Dislocated Worker Grant: (Workforce180, 2019). Restoring Futures is a "Workforce Development effort to bring together workers with employers through On-the-Job Training for good jobs throughout the U.S. Virgin Islands. Restoring Futures is funded by $4,997,845 National Dislocated Worker Grant awarded to ICF by the U.S. Department of Labor, Employment and Training Administration." This project encompasses the following industries: for-profit commercial, government agencies, and non-profit organizations. Partners include: Virgin Islands Department of Labor, Virgin Island Economic Development Authority, and Virgin Islands Workforce Development Board.

Local Food Promotion Program
A potential grant program that can help with funding for technical assistance on longer term crop storage, irrigation, pest management, marketing/distribution, record keeping, grading of fresh produce, and sustainable soil management. (Community Foundation of the U.S. Virgin Islands, 2018)

Wellness
Products produced through food enterprise center could have healthy benefits. Food enterprise centers allows for consumers around the community to have their choice to a variety of healthy produce options. They can serve as a great solution in reducing the gap from bring the food from the farm to the consumers table. The food enterprise center can include a shared use kitchen that can allow members of community to use to cook the fresh produce. In addition, the food enterprise center has opportunities for community supported agriculture programs that provides fresh produce for households with a small monthly cost (Republic Food Enterprise Center, 2017; Morris, 2017).

Policy
Food enterprise centers can vary with each one depending on what type of ownership there is. There is two forms of ownership for food enterprise centers that contains local ownership and local control. Local ownership is the most common form of ownership, since most small businesses are just starting out. In addition to implementing food enterprise centers, it’s most important to look at the city’s code and zoning when determining where the best location is to implement it at (Wallace Center, Winrock International, 2009; Sustainable Economies Law Center, 2016).

Establishment of Zoning Districts:
The Virgin Islands, consisting of the Islands of St. Thomas, St. Croix and St. John and all other islands within the jurisdiction of the Virgin Islands, are divided into eighteen (18) districts (not all of which are found on each of the Islands.) (Office of the Code Revisor, Legeislature of the Virgin Islands, 2019)

A-1 Agricultural District
A-2 Agricultural District
R-1 Residence—Low Density
R-2 Residence—Low Density
R-3 Residence—Medium Density
R-4 Residence—Medium Density
R-5 Residence—High Density
B-1 Business—Central Business District
B-2 Business—Secondary

10. B-3 Business—Scattered
11. B-4 Business—Residential Areas
12. C Commercial
13. I-1 Industry—Heavy
15. W-1 Waterfront—Pleasure
16. W-2 Waterfront—Commercial—Industrial
17. P Public
18. S Special

Low income geographic regions currently serve as the most underserved communities that lack access to healthy food options. As a solution, food enterprise centers can serve these communities by providing affordable produce that comes fresh from the farm. Additionally, farmers have a hard time producing enough food for the current demand. There is opportunities for conferences to be put in place that connects farmers with financiers to overcome these barriers (Wallace Center, Winrock International, 2013; Mugica, 2015).
Distribution involves moving product from farm or processing site to market or consumer, and may include wholesaling, warehousing, transportation, grocery stores, food hubs, farmers markets, and community supported agriculture.

Currently the territory is importing up to 99% of their foods. There are potential opportunities to decrease this with the appropriate distribution channels and collaboration between local businesses within the territory.

There are also projected shifts in climate that may impact the availability and reliance on imports, this includes: projected rising temperatures, changing weather patterns and increases in frequency of extreme weather events. Developing storage and transportation infrastructure and protocols may need to be modified to prevent spoilage and cope with weather damage, as well as the need to create more local-based practices for food access and resilience (U.S. Climate Resilience Toolkit).

Through community interviews (and research of existing food businesses specializing in distribution and marketing) Cooperatives and/or Food Hubs that support the collective aggregation from multiple farms and fishers for distribution to retailers, grocers and other food markets. Existing feasibility and research have been conducted in the past with USVI Extension and DOA, and there is a need for business development around this type of aggregation business. However, there is additional need for facilitation and support in building trust and appropriate business models for insurance of trustworthy practices amongst all partners.

Additionally, opportunities may include expanding farmers markets—both existing and new—to stimulate local economies on each island. St. Croix and St. Thomas have existing local producers to increase and sustain sales at farmers markets. There may be ways of encouraging increased networking between farmers for diversified crops and products sold at the market to increase sales and revenue, as well as consumer experience. St. John may also benefit from a local food marketplace and local food distribution opportunity. St. John is currently struggling in its capacity to grow product on island as there is only one major farm, which is currently experiencing political conflict. The island is in need of additional local, fresh and healthy food options that are available regularly.
Community Supported Agriculture

Community Supported Agriculture (CSA) is a partnership between farmers and community members working together to create a local food system. This differs from direct marketing because members share in the risk of production, allowing for producers to concentrate on growing food and caring for the land. CSAs are a popular way to buy local, seasonal food directly from farmers. Consumers receive ultra-fresh, and often times, unique produce and recipes for cooking. It also allows for consumers to visit farms and learn about different growing styles. CSAs operate under a shared commitment to build a more local and equitable food system, where producers can focus on land stewardship and still maintain productive and profitable small farms; allowing for the highest Ecological potential possible.

Existing CSA programs: There are two CSAs in the Territory: V.I. Locally Grown Market, which is operated through Ridge to Reef Farm, and Sejah Farm of the V.I., both located on St. Croix.

CSA Opportunities: There may be opportunities for CSAs to develop within exiting farms if capacity is available. The Territory has over 200 farms with agricultural land ranging from 3 acres to over 100 acres. Many of these farms could participate in a CSA model that would enhance local production, purchases and access to fresh foods. Other ways that farmers could increase their direct-to-consumer market is through farm stands, agritourism events, or developing aggregated food boxes with other farmers that have different products. For example, food box programs that offer products from multiple farms or food business may include eggs, meat, baked goods, and produce.

Interviews:

Have an ongoing CSA; following the hurricane, a lot of the members didn’t show up, but still had crops. A year after the storm have had a lot of people move….still have some people that continued on with CSA (Farmer, 2018)

Environment

Community Supported Agriculture (CSAs) typically promote sustainable practices and energy conservation through minimal processing, packaging and travel distances.

Economy

Community Supported Agriculture aids both the producer and consumer through a mutually beneficial relationship while simultaneously supporting local and regional economies. CSAs foster partnerships with farmers and community members and encourage community involvement. Operational efficiency eliminates the middleman while providing new employment opportunities. CSAs allow for diversification of farming methods, production, and sales, as well as supporting multi-scaled agriculture.

Education

Community Supported Agriculture allows consumers to visit farms and learn about different growing styles. They also provide opportunities for work share: hands-on educational experience, learning on various farming methods, business models, new produce and cooking techniques.

Wellness

CSAs support healthy eating and living by providing nutritional, local, fresh foods to consumers. CSAs create certainty for the consumer that their food is coming from a known and local source. Distance traveled has a direct influence on the nutritional content of foods, minimizing nutritional values and flavors.

Policy

Community Supported Agriculture must comply with regulations like safe food handling and storage on the business and distribution side and may be affected by local and regional zoning codes; while on the production side things like safety, food preparation and specific certifications (organic) may also be necessary.
Equity

CSAs operate under commitment to build a more local and equitable food system, where producers can focus on land stewardship and still maintain productive and profitable small farms; allowing for the highest ecological potential possible. CSAs also increase both access and awareness in communities on topics such as, the importance of supporting local producers and eating healthy, fresh foods.
Farmers Markets

Farmers markets allow for food and businesses to expand retail opportunities through access to a market venue. The sales from farmers markets indirectly effects other industries such as manufacturing, transportation, agriculture, and professional services, leading to job creation in these sectors. Existing city space is re-used as a market for all individuals to socialize and purchase fresh and affordable products that reflect regional and community diversity. Social interactions are typically unavailable at regular grocery stores or retail locations; however, farmer’s markets bridge social gaps and create access to affordable, healthy food choices in urban and rural communities. Unique programs exist that also incorporate food assistance programs like Women Infants and Children (WIC), Family Nutrition Education Programs (FNEP), Supplemental Nutrition Assistance Programs (SNAP) and Double Up Food Bucks (DUBF) to further create equitable access to all individuals. Like Farmers Markets, Public Markets provide space for food businesses like grocers and retailers, restaurants, and other food businesses to have permanent space for their markets. This benefits the local economy, delivers seasonal products, and increases options for natural and organic production. This provides customers with high quality products and builds the infrastructure for an effective local food system.

Existing Farmers Markets: There are currently four operating farmers markets in the Territory: Bordeaux Farmers Market and Rothschild Francis Market Square on St. Thomas; V.I. Locally Grown Market/Ridge to Reef Farm and La Reine Farmers Market on St. Croix. There are no farmers markets on St. John. Virgin Islands Good Food Coalition received a USDA AMS Farmers Market Promotion Program grant to support farmers markets throughout the territory. It will include education options for farmers and consumers to build awareness of farmers market products.

Farmers Market opportunities: Although farmers markets already exist on St. Croix and St. Thomas, there may be more potential to expand markets on these islands than St. John. St. John does not currently have a farmer’s markets and has only one commercial local producer. However, because of limited existing production and local sales or vending opportunities, a farmer’s market on St. John has the most potential to see the biggest impacts.

Community Discussion:

Many residents discussed their reliance on farmers markets and roadside stands for their food access. In St. John particularly, several commented on the need for a dedicated farmers market either in Coral Bay or Cruz Bay.

Interviews:

There are Farmers Markets on St. Thomas in all places. (Shelley, 2019)

we have a comprehensive plan for the farmers market that incorporates wash facilities, stage, and new market space…we will be able to catch water from the room, but it won’t provide enough water for all of the farm land (Farmer, 2018)

Bordeaux farmers market is not accessible to other markets, need people to go to central market (Market Square) on Saturday mornings, which currently has about 12 farmers (Hodge, 2019)

Environment

Farmers markets can support environmentally sustainable practices through educational opportunities during market events. Similarly, ensuring that the markets include trash and recycling services will support in awareness of environmental sustainability. Farmers markets have also developed policies for types of practices they want their vendors to abide by, which may support overall environment throughout the community.
**Economy**
Farmers markets indirectly effect other industries such as manufacturing, transportation, agriculture, and professional services. They support the local economy through the creation of jobs and the use of vacant or under-used city space stimulates the urban area, bringing customers to surrounding businesses. Producers that sell at markets typically use fair pricing while fostering relationships with community members. Additionally, minimal start-up costs increase market opportunities for local producers. Farmers markets located on St. Croix have the potential to expand market options due to land availability, producers and population. St. John has limited capacity for Farmers markets due to limited local producers and agricultural land availability. In 2007, St. Croix had a total of 160 farms, St. Thomas and St. John had a combined total of 59 farms (USDA, 2009). Farmers markets indirectly effect other industries such as manufacturing, transportation, agriculture, and professional services, creating a strong local food system.

**Education**
Farmers markets provide opportunities for learning through community engagement, this can occur with various events and public input at the market as well as relationship development between producers and consumers.

**Wellness**
Producers that sell at farmers markets are typically local and provide consumers with fresh foods, promoting healthy eating and equitable access to nutritious products. Distance traveled, as well as storage, are major factors that contribute to nutritional content. Farmers markets promote high quality, fresh, local products that enhance overall nutritional value.

**Policy**
Farmers markets comply with state regulations for production, but limited regulations exist for sales. Individual farmers markets and producers have the right to decide on acceptance of assistance programs like SNAP and DUFB.

See Consumption: Nutrition Assistance Programs

**Equity**
The U.S. Virgin Islands have multiple public transportation options: public bus system, shared-ride passenger taxis through VITRAN; Open-Air Safari Taxis multi-destination vans and “dollar rides;” private taxis; and ferries.

Farmers markets typically occur in urban settings, allowing for increased access through geographic location and transportation easement. They also provide social opportunities, building relationships between consumers and producers. Affordable pricing and assistance programs like SNAP (Supplemental Nutrition Assistance Program) and DUFB (Double Up Food Bucks) allow for equitable access to fresh and local foods. Providing these assistance programs at farmers markets increase customer base. (Murphy, 2019)

See Consumption: Nutrition Assistance Programs
Grocery Stores

Stores come in many sizes and shapes and offer various specialties in regard to retail products. Smaller stores include convenience stores, delicatessens, greengrocers, and health food stores. Within the local food realm, a common goal is also to enhance community economic development. In addition, customers are demanding locally sourced protein and produce, environmentally sustainable options, and healthy meals. Local grocers can assist in this movement by offering retail products that celebrate regional and cultural food. The use of local foods is mutually beneficial among producers, consumers and business owners because it increases profits, provides customers with high quality products, and builds the infrastructure for an effective local food shed.

Existing Groceries: There are 37 grocery stores in the Territory. Of those, 16 are located on St. Croix; 15 on St. Thomas; and 6 on St. John. (Open Street Map) Additionally, there are five wholesale distributors that service the USVI: Caribbean Foodservice Inc., Merchant’s Market, Flatley’s Foodservice, SeaWorld, and Quality Food St. Croix.

Grocery opportunities: There was a strong desire from community residents, businesses and producers to see increased local and fresh food options sold at groceries. Overwhelmingly, residents described spoilage and out of date food being sold at groceries due to the length of time for imports to come in. There may be opportunities for grocers to increase their local procurement, and thus increase the longevity of their product. While some products may cost more due to the quality and local aspects, it has the potential to save costs if more product can be sold due to shelf stability.

Community Discussion:

Community members listed several grocery stores that they accessed to find local food, as well as farm stands that may sell at the parking lot of the grocery store. Common groceries mentioned included: Starfish and Dolphin on St. John; Fruit Bowl, Pueblo, and Plaza Xtra on St. Thomas; and Market Lorraine on St. Croix.

Farmers shared that there is interest in selling more to grocery stores and other markets, and there may be need for additional farmer and buyer educational programs to understand the quantity and quality needed at markets.

Consumers overwhelmingly shared that there is a constant lack of supply of fresh fruits and vegetables as well as local food supply. In addition, many reported that fresh products spoil quickly when purchased from grocery stores. This is likely due to the long shipping time for product to reach the island and could be a reason to pursue additional local products being farmed and sold in collaboration with grocery stores.

Interviews:

We have always tried to purchase from local farmers. Farmers will provide product as they can, consistently or sporadically. I believe what St. Croix mainly needs is more local producers and farmers. I would be willing to do minimal distribution of product we receive to local restaurants and food businesses. (Logan, 2019)

Since the hurricanes, grocery store shelves are bare—even of daily necessities—and prices of goods have increased. I believe the island needs to be importing food more frequently to increase quality, freshness, and have a larger amount of healthy foods in stores. (Colasacco, Island Health and Wellness, 2019)

Currently the Department of Agriculture is working on a farm to grocery project that starts with produce, and then will expand to livestock and aquaculture. (Abraham, 2018)

Stop N’ Shop does local purchasing; option for potato or mango relationship. (Christian, 2018)

In my experience growing up on-island, food access was didn’t seem like a problem; grocery stores were accessible, both geographically and physically. (Newton, 2019)
A major piece of the cultural identity of the Virgin Islands is to produce, shop, and eat locally. There is more demand for local product on St. Thomas than on St. Croix, but the Department of Agriculture blocks all local food sales. In the 1950s there was a huge shift in culture with the rise of tourism on island which effected the way food was distributed. Cruise ships would import food, which mainly served the tourism population and people stopped purchasing from local producers. Additionally, supermarkets were built, streamlining produce sales and creating a ‘modern American food culture.’ (Shelley, 2019)

I believe the island needs to be importing food more frequently to increase quality, freshness, and have a larger amount of healthy foods in stores. (Colasacco, Island Health and Wellness, 2019)

Our community needs enhanced food security; lots of food is wasted due to short shelf life in stores, as well as having lower quality produce. (Vacharat, 2019)

Environment

There are multiple environmental indicators grocery stores that include accessibility: walkability, individual and public transportation; food storage, energy and water use are also environmental indicators. A walkability map survey was conducted asking community members where they would utilize a walking or biking pathway.

Figure 26: Walkability Map Survey (Virgin Islands Trail Alliance)

Economy

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virgin Islands Territory</td>
<td></td>
</tr>
<tr>
<td>Total Employed Civilian Workers*</td>
<td>29,107</td>
</tr>
<tr>
<td>Food Preparation and Service</td>
<td>2,378</td>
</tr>
<tr>
<td>Farming, Forestry, and Fishing</td>
<td>1,225</td>
</tr>
<tr>
<td>Retail Trade (Food Stores)</td>
<td>1,057</td>
</tr>
<tr>
<td>Retail Trade (Eating and Drinking Places)</td>
<td>1,802</td>
</tr>
<tr>
<td>Agriculture</td>
<td>326</td>
</tr>
</tbody>
</table>

Table 58: Employed Civilian Workers by Race, Selected Food-Related Occupations: Territory (Eastern Caribbean Center and University of the Virgin Islands, 2015; issued 2018)

Two of the ten largest private employers in the U.S. Virgin Islands are grocery stores or supermarkets (Task Force Advisory Committee, 2018). Convenience stores account for 4.2% of food stores, specialty food stores account for 3.4%, and grocery stores account for 92.4% of the traditional food stores within the USVI (USDA, n.d.).

The St. Croix Recovery Plan suggests the creation of Small Business Industry Clusters: set up business industry clusters with local businesses that wish to participate; determine key goals and schedules; promote business to business links; develop public private partnerships; help gain access to additional markets; outline best practices of clusters; create a long-term plan for how the clusters will be managed, funded, and will grow and adapt to ever-changing needs of the business community. This could connect to restaurants as well as other retailers, processors and distributors. (Community Foundation of the U.S. Virgin Islands, 2018)
Education
Many grocery stores will have marketing campaigns that promote eating healthy, cookbooks/recipes, etc. Some grocery stores may also have space for community events that may include cooking classes, etc.

Wellness
Specialty stores that sell an extended section of nutritional foods, may also have in-store marketing or brochures or signage that promote replacement ingredients for a more nutritious meal.

Policy
The USVI Department of Health (DOH) in partnership with the Centers for Disease Control and Prevention, (CDC) and the Task Force for Global Health (TEPHINET) hosted a Walkability Institute on June 13-14, 2017. In each location, the work follows a replicable model already in use across the United States: first, a community walkability assessment, then a Walkability Action Institute followed by team action planning for demonstration projects and policy recommendations. The end goal is to integrate change on a system level to ensure sustainability. (Rezvani, 2019)

The USVI and Guam workshop teams are currently preparing to implement their demonstration projects, conducting data collection, and creating their new walkability-enhancing features (e.g., crosswalks in areas assessed for need). This project was delayed due to Hurricane Irma and Hurricane Maria in 2017, which has resulted in the integration of walkability efforts into larger recovery efforts.

Equity
Poverty, walkability, and food assistance are all indicators of food access. Below is a table of poverty status within the USVI.

<table>
<thead>
<tr>
<th>Poverty Status</th>
<th>Total</th>
<th>Black</th>
<th>White</th>
<th>Other Races</th>
</tr>
</thead>
<tbody>
<tr>
<td>Families</td>
<td>25,964</td>
<td>20,865</td>
<td>2,868</td>
<td>2,230</td>
</tr>
<tr>
<td>Household worked last year</td>
<td>17,920</td>
<td>14,347</td>
<td>1,984</td>
<td>1,589</td>
</tr>
<tr>
<td>With related children 6-17</td>
<td>8,602</td>
<td>7,360</td>
<td>484</td>
<td>758</td>
</tr>
<tr>
<td>With related children under 6</td>
<td>4,479</td>
<td>3,942</td>
<td>224</td>
<td>313</td>
</tr>
<tr>
<td>Income Below Poverty Level</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Families</td>
<td>5,197</td>
<td>4,350</td>
<td>492</td>
<td>355</td>
</tr>
<tr>
<td>Percent below poverty</td>
<td>20%</td>
<td>20.8%</td>
<td>17.2%</td>
<td>15.9%</td>
</tr>
<tr>
<td>Income last year below specified poverty level</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below 75% of poverty</td>
<td>19,280</td>
<td>15,388</td>
<td>1,910</td>
<td>2,032</td>
</tr>
<tr>
<td>Below 125% of poverty</td>
<td>31,031</td>
<td>25,090</td>
<td>2,254</td>
<td>3,686</td>
</tr>
<tr>
<td>Below 150% of poverty</td>
<td>38,163</td>
<td>31,100</td>
<td>2,704</td>
<td>4,358</td>
</tr>
<tr>
<td>Below 200% of poverty</td>
<td>50,456</td>
<td>41,007</td>
<td>4,002</td>
<td>5,536</td>
</tr>
</tbody>
</table>

Table 59: Poverty Status: Territory (Eastern Caribbean Center and University of the Virgin Islands, 2015; issued 2018)

When in poverty, residents have access to programs such as SNAP and WIC to assist in purchasing food. The tables below showcase the number of families experiencing poverty and utilizing SNAP and WIC benefits.

<table>
<thead>
<tr>
<th>Supplemental Nutrition Assistance Program (SNAP) Participation</th>
<th>SNAP Children</th>
<th>Share of State’s Children Receiving SNAP</th>
<th>SNAP Households with Children</th>
<th>Average Monthly SNAP Benefits, All households with children</th>
<th>Percentage of SNAP households with children; gross incomes under 51% of poverty</th>
<th>Percentage of SNAP Households with Children, with Gross incomes between 51-100% of poverty</th>
</tr>
</thead>
</table>

106
<table>
<thead>
<tr>
<th></th>
<th>United States</th>
<th>Virgin Islands</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants</td>
<td>19,891,200</td>
<td>12,500</td>
</tr>
<tr>
<td>Households</td>
<td>9,509,900</td>
<td>6,300</td>
</tr>
<tr>
<td>Total Issuance</td>
<td>$393</td>
<td>$524</td>
</tr>
<tr>
<td>Women</td>
<td>45%</td>
<td>53%</td>
</tr>
<tr>
<td>Men</td>
<td>37%</td>
<td>30%</td>
</tr>
</tbody>
</table>

Table 60: SNAP Participants: U.S. Virgin Islands (Center on Budget and Policy Priorities, 2017)

The SNAP State Activity Report found the following statistics for the U.S.: (Foodshare, 2017)
- Average monthly snap participants: 27,760
- Number of households participating: 13,068
- Total Issuance: $56,766,573

Women Infants and Children (WIC) Participation

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Women</td>
<td>706</td>
<td>721</td>
<td>740</td>
<td>735</td>
<td>744</td>
<td>732</td>
<td>692</td>
</tr>
<tr>
<td>Total Infants</td>
<td>644</td>
<td>655</td>
<td>683</td>
<td>689</td>
<td>717</td>
<td>711</td>
<td>650</td>
</tr>
<tr>
<td>Total Children</td>
<td>1,495</td>
<td>1,517</td>
<td>1,484</td>
<td>1,513</td>
<td>1,523</td>
<td>1,533</td>
<td>1,495</td>
</tr>
<tr>
<td>Total Participants</td>
<td>2,845</td>
<td>2,893</td>
<td>2,907</td>
<td>2,937</td>
<td>2,984</td>
<td>2,976</td>
<td>2,836</td>
</tr>
</tbody>
</table>

Table 61: WIC Participation: Territory (Food Shift - Banana Photo, 2018)

See Nutrition Assistance Programs for additional information
Food Hubs
Connect consumers, buyers, producers, and food businesses by managing aggregation, distribution, and marketing of products from local producers. This can fill a gap in the current distribution industry that distributes 80% of wholesale products from large-scale producers. Food Boxes, or Meal Kits, are subscription-based methods of wholesaling that include fresh, local produce and are typically seasonal. Food Boxes are sold to individual households but may also include institutional or corporate sales. There are currently no operating food hubs in the Territory. Ridge to Reef Farm, based in St. Croix, does limited aggregation from local producers, but does not distribute product. Instead, product is sold through direct sales to consumers, making a unique business model cross between a market and food hub.

There are no Food Hubs or Food Box-model businesses operating in the U.S. Virgin Islands.

Food Hub Site Opportunities: A regional food hub model that provides a collective network for aggregating products, shares resources, management, and infrastructure could provide an economic and social benefit to the community. This business model may have the potential to increase access to fresh, locally grown and harvested food for residents. A future feasibility study and economic impact analysis is suggested to determine the best location and management structure for such a business. There is current research being conducted through DOA and USVI Extension, that should allude to next steps and appropriate potential markets. It will be critical to work on communication and relationship development for a model like this to be successful, as cooperative-based models have been attempted before within the territory. In addition, it is suggested to understand the needs from all islands within the territory, and appropriate ways to build equitable connections for both farmers as well as residents to gain access to sales and products. Developing a strategy for both aggregation and distribution of the product will be critical.

Community Discussion:
There is current research being done regarding food aggregation and distribution amongst producers. While this was not a top priority from the public input sessions, there was still a need shown when talking to farmers about needs for selling product. A food hub that aggregated local product and distributed within the territory could support additional aggregation and wholesale sales to markets like grocery stores, schools, and other institutional opportunities. Department of Agriculture and Virgin Islands Cooperative Extension are currently researching this model as well as cooperative businesses, and it may be worth doing further feasibility studies to understand the impact that this business type could have both regarding food access for residents, as well as economic impact for local farmers.

Interviews:
I believe that a distribution and aggregation food hub model would help build capacity for farmers to sell their products. This could be done through one business, then selling to all markets through purchases of individual-based farms. (Robinson, 2019)

I believe a cooperative-model food business, with a ‘middle-man’ for aggregation, would address a hurdle in the Territory. (Hendricks, 2019)

I have a goal for us to be a hub for food similar to Puerto Rico. Right now, if the water is rough, the food doesn’t come, and we have to wait. We need to have our own food hub so we can sustain ourselves. (Department of Agriculture, 2019)

We need to collaboratively market with other farmers (Focus Group, 2018)

Environment
Food hubs decrease transportation costs, keeping products more local, resulting in a diminished carbon footprint. There is potential on St. Croix and St. Thomas for a food hub, with less potential on St. John due to minimal on-island production. Through our community interviews, we have discovered there are multiple community members that could see the benefit of a food hub model in the Territory. Ridge to Reef Farm does small-scale aggregation of products from local producers but does not distribute products.
Infrastructure and equipment is critical for success of food hubs. The chart below details the findings of infrastructure types from the 2017 National Food Hub Survey.

### Economy
Food hubs stimulate the local and regional economy, supporting local producers and creating a multiplying effect. They create jobs and increase farmer income, allowing for increased volumes of local products sold to consumers. Food hubs enhance efficiency and promote innovative business models that are financially viable. Food hubs expand market opportunities, building capacity to grow additional products and provide a consistent market base allowing producers to plan production. There are three food hub business model types that vary through sales:

- Wholesale: farm to business or institution
- Direct to consumer: farm to consumer
- Hybrid: part wholesale and part direct to consumer

In the 2017 National Food Hub Survey, almost half of the food hubs in the U.S. followed the hybrid model, allowing for heightened sales capacity from a singular business.

The St. Croix Recovery Plan suggests the creation of Small Business Industry Clusters: set up business industry clusters with local businesses that wish to participate; determine key goals and schedules; promote business to business links; develop public private partnerships; help gain access to additional markets; outline best practices of clusters; create a long-term plan for how the clusters will be managed, funded, and will grow and adapt to ever-changing needs of the business community. This could connect to restaurants as well as other retailers, processors and distributors. (Community Foundation of the U.S. Virgin Islands, 2018)

### Education
Food hubs have the potential to increase job capacity and provide trainings and classes for its employees and may additionally incorporate community outreach on local producers and the importance of a local food system. Food hubs also typically support producers in best practices of business operations, packaging and delivery, and food safety to ensure that there are consistent practices being done by all producers selling into the food hub.
**Wellness**
Food hubs distribute mostly fresh or local products from local producers, increasing nutritional value and supporting healthy eating. Many times, locally operated food hubs also distinguish options for cooking and prepping of food for their customers. They may provide recipes, similar to best practices of CSAs if they operate at a direct to consumer market. If the Food Hub is operating with a wholesale market, there are additional ways of connecting the sales into worksite wellness programs and highlighting nutritional aspects of the food being served.

**Policy**
Food hubs must comply with regular food handling and food safety standards. The following are some of the top preferred producer/supplier certifications and practices by food hubs: (Findings of the 2017 National Food Hub Survey, 2018)

- USDA certified organic
- Marine Stewardship Council certification
- Certified Humane
- Certified Naturally Grown
- Animal Welfare Approved
- Good Handling Practices certification
- Good Agricultural Practices certification

**Equity**
Food hubs have the potential to serve underserved areas of communities and increase food access. Food hubs have the potential to increase access to fresh, local foods and serve underserved areas of community and jobs, as well as decrease transportation costs while supporting local producers.
Cooperatives

Cooperatives within food systems are typically in the shape of a grocery store, market, or distribution hub; however, they can be found throughout a variety of product supply. Cooperatives are collectively owned by workers and/or customers who have shared ownership and liability within the company. The goal of a cooperative is to bring the highest quality and best value to members of the business. Many cooperatives offer education opportunities to members, high quality product, member decision making and control, and support for their local communities.

No cooperatives currently exist in the Territory. Previous efforts on St. Croix allowed for an operating cooperative but after a relatively short time period closed due to management issues.

Cooperative opportunities: Similar to food hubs, typically operate as a collective business model. Many times they include both aggregation and distribution channels as well as a storefront and retailer. While there are many different types of cooperatives, the primary aspect is the ownership model where the food providers have equity in the business. A business cooperative may be an appropriate business option to consider for the territory. This could include a store-front site that operates as a local grocer or market part time, and also aggregates and distributes products to grocers and retailers across the territory. While DOA has worked on some of these efforts, capacity for DOA to continue this model may be limited. Conducting a feasibility on a new business or organization to start a cooperative aggregation business could be helpful and would allow for DOA to provide more support in areas of technical assistance rather than needing to run the business itself.

Community Discussion:

Department of Agriculture and Virgin Islands Cooperative Extension are currently researching this model as well as cooperative businesses, and it may be worth doing further feasibility studies to understand the impact that this business type could have both regarding food access for residents, as well as economic impact for local farmers.

Interviews:

Cooperatives have been discussed, but not successfully. We have had producers and leasing markets at different times but there were issues regarding proper training and education. (Peterson, 2018)

It’s challenging to find product at markets, and we need more direct deliveries from farmers; as well as more cooperation in sales rather than working in a competitive atmosphere. (Manly, 2018)

Cooperatives have been discussed but there is a clear lack of training and liability. (Christian, 2018)

There is a need for sharing of resources and risk across the territory farmers, this could allow for access to collective insurance, licensing, certifications, equipment… there are opportunities to utilize cooperatives for resource availability (Focus Group, 2018)

Sometimes cooperatives require that we have to think beyond ourselves in order to move forward (Focus Group, 2018)

We need education for cooperatives, exposing potential participants on how to build a cooperative and dig deep in the cooperative business planning and technical assistance (Focus Group, 2018)

Environment

Cooperatives work to reduce food waste, conserve energy, and promote recycling practices to reduce carbon footprints. Below are two certifications that could be applied to a cooperative (or any retail establishment) for creating an efficient business with minimal negative environmental impact.

Potential environmental considerations for cooperatives include:
United States Environmental Protection Agency Energy Star Certification:
Using the 1 – 100 energy star score, you can understand how your building’s energy consumption measures up against similar buildings nationwide. The Energy Star score allows everyone to quickly understand how a building is performing. A score of 50 represents median energy performance, while a score of 75 or better indicates your building is a top performer – and may be eligible for Energy Star certification. (Energy Star)

Leadership in Energy and Environmental Design (LEED) Commercial Certification:
LEED is the most widely used green building rating system in the world. Available for virtually all building project types, from new construction to interior fit-outs and operation & maintenance, LEED provides a framework that project teams can apply to create healthy, highly efficient, and cost-saving green buildings. LEED certification is a globally recognized symbol of sustainability achievement. (U.S. Green Building Council)

Economy
Cooperatives help build a strong sense of community while supporting local producers and the local economy. Additionally, cooperatives create jobs and unique employment opportunities with educational components that foster relationships. Purchasing, agriculture and consumer cooperatives have over 400,000 full-time equivalent employees and generates over $2 billion in annual gross revenue. (International Co-operative Alliance)

Operation Breadbasket
The Virgin Islands Farmers’ Cooperative (VIFC) began as a community-based, sustainable food supplier in USVI. The vision was to “create conditions in the Virgin Islands where farmers practice sustainable agriculture and all residents have access to fresh locally grown products (meat, fruits, vegetables, and herbs, etc.) and value-added products from all sectors of a vibrant and profitable local agriculture industry. The program received a grant in 2006 from the Small Minority Producer Grant (SMPG) and started a feasibility study and marketing plan (Wedderburn, Cherubin, & Macdougall, 2008). Unfortunately, over-time the cooperative did not last, and there is current concerns on a cooperative in the future. However, there are cooperative based models that have been shown to work successfully and may be worth pursuing in the future.

Education
Cooperatives typically incorporate an educational component, hosting classes or special events that increase community awareness of local food systems or may highlight direct local issues. 83% of cooperatives in the U.S. offer classes on healthy eating and some cooperatives hire nutritionists or dieticians for enhanced social impact in their communities. (National Cooperative Grocers Association, 2012)

Cooperative Programs
USDA Cooperative Programs develop educational reports and programs for understanding cooperative principles and practices, including agriculture and business classes as well as youth groups such as FFA and 4H. Financial assistance can be sought through Rural Development for support of cooperative businesses. (USDA Rural Development, 2019)

Wellness
Cooperatives provide communities with increased access to fresh, local foods that are higher in quality and nutritional content; often focusing on organic foods. For example, 89% of meat sold in cooperatives in the U.S. is sustainably raised. (National Cooperative Grocers Association, 2012)

Policy
According to the International Cooperative Alliance (ICA), a cooperative is defined as, “an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise.” (International Co-operative Alliance)

Cooperatives have the rights to create their own internal policies that regulate operations, governing styles, products and services, discrimination and inclusion, education and finances. 75% of grocery cooperatives in the United States, “have product policies that restrict certain ingredients, such as genetically modified products or high fructose corn syrup.” (National Cooperative Grocers Association, 2012)
**Equity**

Cooperatives influence multiple facets of community, benefiting a wide range of people; for example, cooperatives allow for increased access to fresh and locally produced foods. Cooperatives also act as a “community-owned asset that promotes ethical business practices.” (Cumbie, Bauers, & Reid, 2010)
Food Banks

Food banks are food security-based businesses that provide dry, cooled, and frozen storage space for food that will be distributed to pantries and partner agencies such as food pantries, soup kitchens, and shelters. Food Banks increase individual and household access to nonperishables and fresh produce and may also and may offer educational opportunities in addition to providing jobs and volunteer opportunities. They operate as a warehouse of food to support food access across a region.

See Food Pantries and Meal programs within the consumption sector for additional food donation programs.

Food pantries are self-governing organizations and typically rely on food distributed from a food bank for their donations to clients. Pantries may offer various forms of product from dry, shelf stable products to frozen and fresh produce.

Meal sites (commonly known as soup kitchen) are also self-governing organizations that specifically serve meals to the public either for free or at a reduced price.

There are no food banks within USVI.

**Food Bank Opportunities:** There are currently no operating food banks in the USVI; however, there are three food pantries and meal sites: Catholic Charities and Helping Hands, located on St. John; and Frederiksted Baptist Church-Feed Ministry, located on St. Croix. A food bank may be able to support local food pantries and increase the amount of aggregated product that could be distributed to the community.

**Interviews:**

*We do a food drive every fourth Sunday of the month at our church. All of the food distributed is donated from a local grocery store as there are no food banks on island.* (Catholic Charities, 2019)

*I believe the island needs to be importing food more frequently to increase quality, freshness, and have a larger amount of healthy foods in stores.* (Colasacco, Island Health and Wellness, 2019)

*Our community needs enhanced food security; lots of food is wasted due to short shelf life in stores, as well as having lower quality produce.* (Vacharat, 2019)

**Environment**

Food banks must consider storage methods, energy use and water use. Food donation and recovery is a major component of food banks’ efficiency and success. Some food banks will adopt awareness campaigns or host special events in their community to collect food donations, which increases capacity and impact. Additionally, food banks may aggregate food waste from local businesses to process or distribute to the community. Food waste items may also be used in meal programs, serving prepared meals to community members in need. Through community interviews, a need was expressed for a food bank; a regional food bank could have the potential to increase capacity for aggregated food and address food access issues throughout the Territory.

**Economy**

Food banks stimulate the local economy, creating over 16,000 jobs and increasing business activity by $1.5 billion in gross product each year in the U.S. (Perryman, 2014) “Food banks also have the potential to introduce new income to a community by freeing up income that would otherwise be spent on food.” (Anderson, Briar, Dombrowski, & Lally, 2017)

Organizations and businesses in the U.S. Virgin Islands could potentially use these programs and grants to develop a food bank, filling a much-needed gap in the Territory.

The USDA National Institute of Food and Agriculture have the following hunger and food security programs and grants available in the U.S.: (USDA)
Community Food Projects Competitive Grant Program (CFPCGP)
The CFPCGP “has existed since 1996 as a program to fight food insecurity through developing community food projects that help promote the self-sufficiency of low-income communities. Community Food Projects are designed to increase food security in communities by bringing the whole food system together to assess strengths, establish linkages, and create systems that improve the self-reliance of community members over their food needs.” (USDA)

- Food Insecurity Nutrition Incentive (FINI) Grant Program
- The Expanded Food and Nutrition Education Program (EFNEP)
- Agriculture and Food Research Initiative (AFRI) Food Security Challenge Areas

Education
In addition to jobs, food banks create volunteer opportunities, fostering relationships between community members. Some food banks also provide various classes and organize outreach efforts in their community to showcase how to use products that are donated.

Wellness
Food banks increase food access in a community and region, enhancing quality of life and increasing individual health as well as community health. Many times, food banks can receive product from farms, gardens, and other growers which provides fresh, healthy food for residents in need.

Policy
Food banks must comply with safe food preparation, storage, and handling and some food banks will only accept non-perishable goods for this reason. Feeding America has developed food banks standards for storage capacity, quality control, food safety and management practices to promote the efficiency of food bank operations. (Amy Knoblock-Hahn, Anne Murphy, Katie Brown, & Lisa Medrow, 2017) Additionally, this organization provides oversight of site operations, equipment grants, and trainings for food banks employees and volunteers. (Feeding America)

Equity
Poverty, food insecurity, and physical attributes (geography, urban vs. rural) are indicators of food access. Food banks have the potential to alleviate hunger and provide food security. St. John has determined access to fresh and healthy foods as a current gap in their recovery plan; the following implementation steps have been identified: analysis on food security; and support for churches in the development of food banks and kitchen sites. The report also states that, “Food banks are limited, and hot meal distribution to people in need [is] . . . limited.” (FEMA, 2018) There is little to no data on food insecurity for the U.S. Virgin Islands.

Relatively high rates of poverty and limited community resources keep many residents of agricultural and rural communities from responding to vulnerabilities associated with climate change. (U.S. Climate Resilience Toolkit) Food banks, with cooperative partnerships with food pantries and meal sites, have the potential to service this gap.

The following table details poverty status of the Territory:

<table>
<thead>
<tr>
<th>Poverty Status</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Families</td>
<td>25,964</td>
</tr>
<tr>
<td>Householder worked last year</td>
<td>17,920</td>
</tr>
<tr>
<td>With related children 6-17</td>
<td>8,602</td>
</tr>
<tr>
<td>With related children under 6</td>
<td>4,479</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Income Below Poverty Level</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Families</td>
<td>5,197</td>
</tr>
<tr>
<td>Percent below poverty</td>
<td>20%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Income last year below specified poverty level</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 75% of poverty</td>
<td>19,280</td>
</tr>
<tr>
<td>Below 125% of poverty</td>
<td>31,031</td>
</tr>
<tr>
<td>Below 150% of poverty</td>
<td>38,163</td>
</tr>
<tr>
<td>Below 200% of poverty</td>
<td>50,456</td>
</tr>
</tbody>
</table>

Table 63: POVERTY STATUS: TERRITORY (EASTERN CARIBBEAN CENTER AND UNIVERSITY OF THE VIRGIN ISLANDS, 2015; ISSUED 2018)
Awareness Campaigns
Marketing campaigns build public support for an issue that an organization seeks to resolve or get behind. Typically, the campaign is a comprehensive effort between multiple partners and includes many different forms of outreach through organizations, public and social media, branding, and overall mission of a group or organization. A campaign should speak to a targeted audience and seek out a particular action. Awareness campaigns can support community and organizational identity and assist in bringing visibility, and attention to a specific cause; if used as a call to action, it can assist in behavior change and make significant strides for social behavior improvements.

Existing Campaigns: The U.S. Virgin Islands Department of Agriculture currently has two major focuses for awareness campaigns: Farm to Supermarket and Farm to School.

The Virgin Islands Good Food Coalition received a USDA AMS Farmers Market Promotion Program to support awareness of existing farmers markets and farms throughout the USVI territory.

Additionally, in the summer of 2020, state legislation created (an unfunded) mandate to host an annual Agricultural Caribbean Symposium, which could support the awareness of agricultural products throughout the territory.

Campaign Opportunities: Through our community interviews, expanding and developing campaigns focused on local food purchasing for consumers may be beneficial. This may include creating awareness on educational and technical resources for local food businesses and producers and could occur through enhanced promotion of existing resources or bringing in other, more diverse resources through collaborative partnerships. {via extension, universities, etc.)

Community Discussion:
Individuals shared that there is a lack of awareness about where to find local product throughout the territory. In order to build awareness and identify where local products are being grown, harvested, or sold the concept of a local directory was discussed. The idea of a local food, farm and market directory was one of the top 5 priorities on both St. Thomas and St. Croix. In St. Thomas, a Virgin Islands food brand also was identified as a top 5 priority for the island. Both of these types of projects may assist with understanding where to buy local, as well as lift up the importance of supporting local food businesses.

Interviews:
An awareness and marketing campaign for branding of local and nutritious foods. A quick win for this would be education on different markets, for example, how bidding and pricing work. (Christian, 2018)

Our farm sells to supermarkets and participates in farm to school. We have a section on fresh and local food, including education on why local food is needed and the importance of local food. (Roger’s Farm, 2018)

Environment
Often, environmental change is achieved through awareness campaigns and foster resilient, sustainable food systems and may also be associated with food waste, nutrition, or environmental impact of food and agricultural practices.

Economy
Awareness Campaigns typically are based on creating awareness and educating a target audience within a community but typically gain public support and foster collaboration and comprehensive efforts between multiple organizations and partners. Through this, these campaigns reach a wide section of the community through word-of-mouth marketing and discussions, allowing for an extensive impact to occur with minimal costs, time, and effort.

Farm to Supermarket
This initiative is in collaboration with the U.S. Virgin Islands Department of Agriculture and Plaza Extra West, on St. Croix, to expand purchases of local foods by supermarkets in the Territory, while educating consumers on local food production and purchasing. (The Source, 2018)
VI Growers Collaboration Program
This program is funded through a U.S. Department of Agriculture to educate, provide trainings and resources for local farmers to enhance crop production. This is also in partnership with Plaza Extra West where a Harvest of the Month program will be in place that features a specific local crop, produced by a local farmer. (The Source, 2018)

U.S. Virgin Islands Choose My Plate, USDA
“MyPlate, MyState connects Americans with the foods and flavors grown in their states and regions.” The U.S. Virgin Islands webpage shares information on how locally produced foods can “help create a healthy eating style and support local farmers and communities.” (Choose My Plate)

Education
Awareness Campaigns are essential, comprehensive tools used to inform and educate the public on a particular issue or attempt to reach a specific goal. Various methods, practices, and settings reach different audiences; many schools use Awareness Campaigns to educate young children about where their food comes from, the importance of local, and nutritional awareness.

St. Thomas Community Recovery Plan has identified the Local Food Promotion Program as a resiliency project for long-term recovery on island. The Local Food Promotion Program provides technical assistance on longer term crop storage, irrigation, pest management, marketing/distribution, record keeping, grading of fresh produce, and sustainable soil management. This program also has economic implications through stimulation of the regional community and could enhance local production rates while bringing awareness of the importance of local foods to the community/island. (Community Foundation of the U.S. Virgin Islands, 2018)

Wellness
In addition to environmental impact, wellness is another area that Awareness Campaigns may foster change in a community. Hospitals and clinics in a community may create their own Campaign or promote a large-scale Campaign, such as a federal or state-level, to cultivate change in a relatable context for their community. Additionally, increased communication between producers and consumers may indirectly influence individuals and communities on wellness and nutrition.

Policy
In addition to gaining public support, awareness campaigns have the potential to create change through influencing policymakers. Awareness campaigns can specifically tackle relevant policy change needs and garner public feedback and testimony for those efforts.

Equity
Awareness campaigns typically begin with community involvement and advocacy for a message, group, or movement. Equity and lifting needed opportunities are essential to campaigns, as they are seeking to include multiple individuals in a movement for change. Similarly, by nature, they have the potential to include the community in decision-making within their area.

Know Your Farmer, Know Your Food Initiative, USDA
This campaign focuses on strengthening relationships between producers and consumers, enhancing rural economies, promoting job opportunities and increasing healthy food access. This initiative also encourages education and conversations about where food comes from, creating an opportunity for consumer engagement.
Farm to School: Procurement

Implementation for farm to school can include procurement from local farmers, education on agriculture, food, health and nutrition, and school gardening where kids have an opportunity to learn through hands-on experiences. The goal for farm to school is for children, producers and communities to be vibrant, educating children on agriculture, food, health and nutrition, where kids have an opportunity to learn through hands-on experience.

Existing Farm to School Procurement: From interviews, examples of procurement from programming at schools as well as through the USDA Farm to School program were mentioned. Over 5 farmers mentioned participating in a Farm to School procurement grant to aggregate and distribute product to schools in St. Croix.

See Awareness Campaigns or Food Hubs for additional information.

Farm to School Procurement opportunities:

While current activities are being done for Farm to School Procurement within Department of Agriculture, Extension and Good Food Coalition, there are potentials to continue to expand and connect local foods into schools. A way of building this capacity may be continued support through formal Farm to School Coordinator positions for each school district as well as continued efforts with existing partners. Which may include research on appropriate and plentiful crops that are needed throughout the year, that can be grown, harvested and supplied at rates that are appropriate for both school lunch programs and farmers.

Interviews:

Farm to School is a current project. The first step is to get crops and infrastructure, then receive community support. (Abraham, 2018)

Our farm sells to supermarkets and participates in farm to school. We have a section on fresh and local food, including education on why local food is needed/the importance of local food. (Roger’s Farm, 2018)

The mission of the Department of Agriculture is to build back education from elementary through high school. (Hendricks, 2019)

Environment

Iowa State University EARTH Service-Learning Program is a study abroad opportunity on St. John where students live and work in the community. Some of the work consists of local produce production, school gardens, with teaching opportunities in culinary arts and environmental science. Gifft Hill School on St. John collaborates with EARTH through a school garden program that allows for both Iowa State students and Gifft Hill students to learn in a hands-on environment. EARTH partners with Island Green Living Association as well as other churches and organizations on-island. (Miner, 2019)

Economy

Farm to School procurement increases local producers’ income and puts money back into the local economy. Findings from a study out of the National Farm to School Network on economic impact found, two school case studies participating in procurement reported for every $100 spent on $82 remained in their region. Additionally, it was found that delivery, pricing, time and communication were most satisfactory by participating farmers. (National Farm to School Network, 2017)

Education

Virgin Islands Good Food Coalition (VIGFC) is a non-profit organization that focuses on youth food education, raising awareness on local food, and social justice. “The overall long-term goal of the Farm to School Initiative will be to improve healthy eating habits among school-age children throughout the Virgin Islands by increasing the amount of local fresh fruits and vegetables that are used in school cafeterias.” (Virgin Islands Food Food Coalition)
VIGFC has partnered with other non-profits for fundraising events; building awareness on the importance of eating healthy, nutritious foods, as well as the importance of eating local. (Virgin Islands Food Food Coalition)

**Wellness**
Schools that participate in farm to school procurement receive local foods for meals and snacks that contain higher nutritional content. When kids have opportunities to try products more frequently, they are more likely to create habits to eat those foods. By providing fresh, local foods at schools, there is a higher likelihood of children to desire those products at home and through their lives.

**Policy**
The Department of Agriculture is currently partnering with Future Farmers Association and Economic Development Administration to expand current school garden and procurement efforts. There has been limited action with this project due to minimal funding. (Hendricks, 2019) Additional projects through the Department of Agriculture include: Harvest of the Month, applies to farm to table; Farm to Supermarket, happening on St. Croix and St. Thomas; Farm to School; Farm to Hospital; and Farm to Community. (Abraham, 2018)

**Equity**
Local procurement can impact schools and community in multiple ways. By offering local products, schools can educate and inform students on the local culture of food and provide market opportunities to local farmers. Additionally, by providing local, fresh options, whether through meals or snacks, schools ensure that every child has access to healthy and nutritious foods which they may otherwise not have access to.
Consumption and access

Consumption involves opportunities for an individual to gain access to food in a physically safe, financially viable, and culturally competent way, and may include restaurants, food pantries, meal assistance programs and awareness campaigns.

Overall, access to fresh fruit and vegetables was the top listed need and priority within the territory. This included the desire to see an increase in local food sold within retail establishments and other markets.

From the community assessment it was identified that 20% of households in the Virgin Islands Territory struggle with poverty. Food insecurity and access can often be present in low-income households. To help increase food access, the territory utilizes federal meal programs such as SNAP (Supplemental Nutrition Assistance Program), WIC (Women, Infants and Children), and Free and Reduced Lunch programs. These programs help supplement food budgets for low-income families.

Meal sites and food pantries are another way to increase food access in communities. Meal sites and pantries can be found on St. Croix and St. John. No pantries or meal sites could be identified on St. Thomas. Support may be needed for development of food banks or pantries and meal sites at churches and other public locations in the territory.

Currently there is not support for programs like SNAP and WIC to be accepted at local food outlets, such as farmer’s markets. Double Up Food Bucks could be utilized for programming or as a model for new programming if this is a viable opportunity.

Restaurants are another way a consumer can access food. It was identified that after the hurricanes, restaurants lost employees due to lack of resources or time, which has led to reduced hours or closures which has an overall impact on business. In addition, the lack of consistent produce for procurement has caused restaurants to have a “skeletal menu” or a changing menu based on what is available. Restaurant owners have expressed that they would like to better connect with producers on their menu needs and be able to procure enough for a sustainable supply throughout the year.

The St. Croix Recovery Plan suggests the creation of Small Business Industry Clusters: set up business industry clusters with local businesses that wish to participate; determine key goals and schedules; promote business to business links; develop public private partnerships; help gain access to additional markets; outline best practices of clusters; create a long-term plan for how the clusters will be managed, funded, and will grow and adapt to ever-changing needs of the business community. This could connect to restaurants as well as other retailers, processors and distributors. (Community Foundation of the U.S. Virgin Islands, 2018)
**Nutrition Assistance Programs**

Nutrition Assistance Programs are government funded programs combat hunger through aiding low-income households in purchasing healthy foods, as well as providing education on food budgeting. Various programs target different groups of people, varying from seniors, to adults, to infants and can be used at grocery stores, farmers markets, cooperatives, etc. The general goal of all Nutrition Assistance Programs is to help individuals and families to work toward self-sufficiency, while enhancing nutrition education and awareness.

**Existing Nutritional Assistance Programs:** Double Up Food Bucks (DUFB); Disaster Supplemental Nutrition Assistance Program (D-SNAP); Supplemental Nutrition Assistance Program (SNAP); Special Supplemental Nutrition Program for Women, Infants and Children; National School Nutrition Programs; as well as a local program in the U.S. Virgin Islands is the SNAP Fresh Foods Farmers’ Markets Technology Improvement Program.

**Nutrition Assistance opportunities:** There was not an overwhelming demand for nutrition programs throughout the assessment, however, there were conversation on food access and availability. While this connects more to the imports and shelf-life of products, there may be opportunities to also increase awareness about nutrition assistance programs that are available, as well as decrease the stigma around participation in these programs.

**Community Discussion:**

Overwhelmingly, the priority throughout the territory is increased access to fresh fruits and vegetables. This may be able to occur through both nutritional assistance programs, as well as through changes to distribution practices and increased local supply. During community input sessions, residents shared lack of accessibility to fresh fruits and vegetables both from an availability standpoint as well as price. While there is support for local food businesses, there is a gap in the prices that are offered. However, there were many discussions that eluded to products sold at grocery and department chains, while cheaper, spoil more quickly. Having educational programming on ways to store product through canning or other means may be a helpful strategy for creating fruit and vegetable access in addition to continuing to support families through WIC, SNAP, etc.

**Interviews:**

*People can’t afford to buy food (Member, 2019)*

I believe the island needs to be importing food more frequently to increase quality, freshness, and have a larger amount of healthy foods in stores. *(Colasacco, Island Health and Wellness, 2019)*

Our community needs enhanced food security; lots of food is wasted due to short shelf life in stores, as well as having lower quality produce. *(Vacharat, 2019)*

**Environment**

Nutrition Assistance Programs exist to aid low-income households access nutritious foods. There are multiple environmental factors—distance traveled, storage methods, and geographic location—that affect food access related aspects like transportation and food prices.

The U.S. Virgin Islands imports nearly all of their food, resulting in lower food quality, diminished nutritional content, and increased prices. Nutrition Assistance Programs have the potential to offset some of the costs incurred through travel distances, transportation, and storage methods. *(Committee on Examination of the Adequacy of Food Resources and SNAP Allotments, 2013)*
**Economy**

Nutrition Assistance Programs temporarily aid low-income households in purchasing healthy foods. These programs allow an increased number of individuals to purchase from local food stores, eventually working toward self-sufficiency and putting money back into the local economy.

**Double Up Food Bucks (DUFB)**

DUFB assists individuals and families in increasing consumption of and access to fruits and vegetables. This program matches the dollar amount of fruits and vegetables purchased, doubling the amount of produce that is purchased at grocery stores and farmers markets. (Double Up Food Bucks)

Farmers markets in the USVI do not currently participate in DUFB programming (Double Up Food Bucks). This is a potential opportunity for residents to have access to local, fresh produce. Participation in this program could enhance economic activity, boost nutritional awareness and potentially lead to a larger policy change or increase government funding for assistance programs.

**D-SNAP: Disaster Supplemental Nutrition Assistance Program**

This program, housed under the Food and Nutrition Service (FNS) works with volunteer organizations on state and local levels to provide food-related relief during disasters or in state of emergency. Part of this program’s efforts is to provide nutrition assistance and supply and distribute food. This program partners with large-scale organizations like Red Cross and Salvation Army. (United States Department of Agriculture)

**Education**

Many Nutrition Assistance Programs are targeted at families with young children. These programs provide an opportunity for children to learn through experience and observation. Participation in Nutrition Assistance Programs has a positive effect on grade retention in children (Beharie, 2016).

**National School Lunch Program**

These National School Lunch Program is a federally assisted meal program operating in public and nonprofit private schools and residential childcare institutions. It provides nutritionally balanced, low-cost or free lunches to children each school day. The Territory participates in the following programs: National School Lunch, Summer Food Service, School Breakfast, Child and Adult Care Food. (USDA Food and Nutrition Services, 2019)

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>National School Lunch Program</th>
<th>Summer Food Service Program</th>
<th>School Breakfast Program</th>
<th>Child and Adult Care Food Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>13,112</td>
<td>7,470</td>
<td>4,299</td>
<td>1,419</td>
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<tr>
<td>2015</td>
<td>12,050</td>
<td>7,707</td>
<td>3,951</td>
<td>1,429</td>
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<td>2016</td>
<td>11,261</td>
<td>7,015</td>
<td>3,536</td>
<td>1,529</td>
</tr>
<tr>
<td>2017</td>
<td>9,588</td>
<td>3,916</td>
<td>3,243</td>
<td>1,455</td>
</tr>
<tr>
<td>2018</td>
<td>5,001</td>
<td>4,346</td>
<td>955</td>
<td>751</td>
</tr>
</tbody>
</table>

Table 64: National School Nutrition Programs, by participation: (USDA Food and Nutrition Services, 2019)

<table>
<thead>
<tr>
<th></th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Lunch Total Participation</td>
<td>13,112</td>
<td>12,050</td>
<td>11,261</td>
<td>9,588</td>
<td>5,001</td>
</tr>
<tr>
<td>Total Lunches Served</td>
<td>2,034,313</td>
<td>1,839,191</td>
<td>1,763,157</td>
<td>1,478,904</td>
<td>783,480</td>
</tr>
<tr>
<td>School Breakfast total participation</td>
<td>4,299</td>
<td>3,951</td>
<td>3,536</td>
<td>3,243</td>
<td>955</td>
</tr>
<tr>
<td>Total breakfasts served</td>
<td>691,486</td>
<td>634,515</td>
<td>575,930</td>
<td>514,279</td>
<td>158,551</td>
</tr>
<tr>
<td>Summer Food Service program</td>
<td>7,470</td>
<td>7,707</td>
<td>7,015</td>
<td>3,916</td>
<td>4,346</td>
</tr>
<tr>
<td>Total summer meals served</td>
<td>183,324</td>
<td>227,925</td>
<td>222,208</td>
<td>185,908</td>
<td>115,618</td>
</tr>
</tbody>
</table>

Table 65: Free and Reduced Lunch: (Food and Nutrition Service, 2018)
**Wellness**

Nutrition Assistance Programs “[play] a critical role … in improving dietary intake and health, especially among children.” (Food Research & Action Center, 2017) These programs specifically aim to aid households in purchasing nutritious foods, minimizing consumption of unhealthy foods and decreasing the frequency of eating fast food. (Molitor, et al., 2015)

**Supplemental Nutrition Assistance Program (SNAP)**

“SNAP provides nutrition benefits to supplement the food budget of needy families so they can purchase healthy food and move towards self-sufficiency.” (U.S. Department of Agriculture)

In August of 2019, farmers in the USVI became eligible to accept SNAP benefits through EBT payment. In addition, offering these incentives through farmers markets purchases have increased fruit and vegetables purchased at the market—SNAP is viewed to increase customer base. The U.S. Virgin Islands Territory participates in SNAP; online application is available online. (Murphy, 2019)

**Women, Infants and Children (WIC)**

WIC “provides federal grants to states for supplemental foods, health care referrals, and nutrition education for low-income pregnant, breastfeeding, and non-breastfeeding postpartum women, and to infants and children up to age five who are found to be at nutritional risk.” (U.S. Department of Agriculture)

In the past 5 years, the average monthly benefit per person of WIC participation is $76.35. (Food and Nutrition Service, 2018)

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Women</td>
<td>706</td>
<td>721</td>
<td>740</td>
<td>735</td>
<td>744</td>
<td>732</td>
<td>692</td>
</tr>
<tr>
<td>Total Infants</td>
<td>644</td>
<td>655</td>
<td>683</td>
<td>689</td>
<td>717</td>
<td>711</td>
<td>650</td>
</tr>
<tr>
<td>Total Children</td>
<td>1,495</td>
<td>1,517</td>
<td>1,484</td>
<td>1,513</td>
<td>1,523</td>
<td>1,533</td>
<td>1,495</td>
</tr>
<tr>
<td>Total Participants</td>
<td>2,845</td>
<td>2,893</td>
<td>2,907</td>
<td>2,937</td>
<td>2,984</td>
<td>2,976</td>
<td>2,836</td>
</tr>
</tbody>
</table>

Table 66: U.S. Virgin Islands Participation in WIC: (Food and Nutrition Service, 2018)

Policy

Nutrition Assistance Programs are funded through the federal and state government. The following programs are provided through state and federal policies within the USVI.

**Special Nutrition Programs:**

In recognition of the demonstrated correlation between good nutrition and the capacity of children to develop and learn, and to more effectively meet the institutional needs of the children of the Virgin Islands, the Commissioner of Education is hereby authorized and directed to conduct special nutrition programs, including school lunches. Such programs shall be developed and conducted in full compliance with federal requirements for special nutrition programs. Nothing in this chapter shall be construed as authorizing programs which would disqualify the Virgin Islands from maximum federal funding of special nutrition programs under Title 42, Chapters 13 and 13A, United States Code, or any future amendments thereto. (Office of the Code Revisor, Legislature of the Virgin Islands, 2019)

The Virgin Islands Department of Education is hereby designated the “State Agency” for administration of special nutrition programs within the meaning of that term under applicable federal law. The Commissioner of Education may consult with the Commissioner of Health, the Commissioner of Economic Development and Agriculture, administrators of charitable institutions, and the Commissioner of Human Services in administering the provisions of this chapter in order to maximize the effective delivery of services under the programs required by this chapter.

The Commissioner of Education, in consultation with the respective Insular Superintendents, shall designate within each district, a “school food authority” within the meaning of applicable federal law. Each “school food authority” shall be responsible for the administration of special nutrition programs within their respective districts.
“Numerous federal programs including social security, pension and food stamps, use the CPI to index changes in the cost of living. The private sector also uses the CPI to keep collective bargaining agreements, alimony payments, child support payments, rents, royalties and contracts in line with price changes.” (Bureau of Economic Research, 2019)

**Equity**

Nutrition Assistance Programs aid individuals and families to access nutritional foods while simultaneously working toward self-sufficient budgeting and purchasing. SNAP (Supplemental Nutrition Assistance Program) programming reduces food insecurity by up to 40% in the U.S. (Ratcliffe, McKernan, & Zhang, 2011)

**SNAP Fresh Food Farmer’s Markets Technology Improvement Program**

The Department of Human Services and the Department of Agriculture shall implement a SNAP Fresh Food Access and Farmers’ Market Technology Improvement Program. The purpose of the Program is to increase access to fresh fruits and vegetables and other eligible food products, including quality meat, seafood and dairy, for Virgin Islands residents by allowing SNAP participants to utilize their EBT cards at farmers’ markets. The Department of Human Services and the Department of Agriculture shall solicit federal and territorial funding for the purpose of implementing the Program. (Office of the Code Revisor, Legislature of the Virgin Islands, 2019)
Food Pantries and Meal Sites
A food pantry is a charitable distribution agency that provides clients with food and grocery products for home preparation and consumption. Food pantries often redirect unspoiled food from landfills to community members in need, helping to minimize food waste and reduce its environmental impact. Meal programs often include a client-choice pantry and targeted referrals to community services, helping to eliminate poverty among clients. These programs also result in outcomes of food security, self-sufficiency, and increased fruit and vegetable consumption. Food pantries often partner with local growers, nonprofits, healthcare organizations, and members of the community to maximize their efforts in providing fresh food to those in need. Food pantries are also working to reduce childhood hunger by providing direct access to free and nutritious food to students in need.

Existing Food Pantries/Meal Sites: Programming and partnerships have begun at churches and local hospitals to provide additional options for food access.
- St. Croix sites: (Source, 2017)
- My Brother’s Table, Frederiksted
- Frederiksted Health Care Clinic
- Frederiksted Baptist Church
- St. John sites: (Source, 2014)
- Helping Hand Food Pantry

Food Pantry and Meal Site Opportunities: Continuing to collaborate with non-profits, schools and faith-based organizations may be helpful to continue for providing food for residents in need.

Community Discussion:
Food pantries and meal programs were discussed regarding to supporting food access for families with limited income. Each island currently has outreach for limited programming for meals and pantry sites, however, St. John specifically shared the need for additional programming for pantry locations. St John has determined the following implementation steps in their recovery plan: (FEMA, 2018)
- analysis on food security
- support churches for development of food banks/ kitchen sites

Interviews:
“During normal life, it’s a luxury to think about buying local food; now I just need something to fill my belly” (Farmer, St. Croix, 2018)

“It was hard to cook a meal, I wanted to cook something quick and use energy elsewhere; the relative importance of local food didn’t matter against other survival issues…there was food to eat, it wasn’t healthy or good food but there was food available” (Farmer, St. Croix, 2018)

“We are operating in a system that doesn’t understand food security and food sovereignty, we just get by to get by…the fact that 99% of our food comes into our island is a recipe for disaster every day and we don’t see that as a situation that needs to be corrected” (Farmer, St. Croix 2, 2018)

Environment:
Food pantries redirect unspoiled food from landfills to community members in need, helping to minimize food waste and reduce its environmental impact. Mobile food pantries allow for fresh, healthy food to be delivered to clients as quickly as possible without exceeding its short shelf life. They are essentially a farmers’ market on wheels, delivering a variety of fresh fruits, vegetables, dairy products, and baked goods to people in need, often on the same day the food is donated. Mobile food pantries also increase the amount of food that is distributed to food insecure individuals by meeting them where they are in the community (United States Environmental Protection Agency, 2017; Feeding America West Michigan, 2018). Below is a table that lists food banks, food pantries, emergency food pantries or meal sites by Island.
### Food Banks, Food Pantries, Emergency Food Pantries and Meal Sites

<table>
<thead>
<tr>
<th>Type of Organization</th>
<th>Island</th>
<th>City</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catholic Charities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food Pantry and Meal Site</td>
<td>St. John</td>
<td>Cruz Bay</td>
</tr>
<tr>
<td>Helping Hands</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food Pantry</td>
<td>St. John</td>
<td>Cruz Bay</td>
</tr>
<tr>
<td>Frederiksted Baptist Church-Feed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ministry</td>
<td>St. Croix</td>
<td>Frederiksted</td>
</tr>
<tr>
<td>My Brother’s Table</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meal Site</td>
<td>St. Croix</td>
<td>Frederiksted</td>
</tr>
<tr>
<td>Frederiksted Health Care Clinic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meal Site</td>
<td>St. Croix</td>
<td>2,907</td>
</tr>
</tbody>
</table>

### Table 67: Poverty Status: Territory (World Food Prize, n.d.) (Source, 2017)

**Economy**

Food pantries offer programs that help to alleviate poverty among their clients. Rather than simply supplying as much food as possible, food pantries can better serve populations who would otherwise rely long-term on the pantry for assistance by providing them with resources to be self-sufficient. One such example is the creation of an incubator farm, which minimizes the barriers to starting a farm business by providing technical training, access to tools and land, and cooperative marketing opportunities for clients. In doing so, they have direct access to fresh food, a supplemental source of income, and critical community building opportunities. Food pantries also partner with local growers, nonprofits, healthcare organizations, and members of the community to maximize their efforts in providing fresh food to those in need (Ballantyne, Baylor, Bowe, & Stewart, 2015; DeByl, 2018).

<table>
<thead>
<tr>
<th>Poverty Status</th>
<th>Total</th>
<th>Black</th>
<th>White</th>
<th>Other Races</th>
</tr>
</thead>
<tbody>
<tr>
<td>Families</td>
<td>25,964</td>
<td>20,865</td>
<td>2,868</td>
<td>2,230</td>
</tr>
<tr>
<td>Householder worked last year</td>
<td>17,920</td>
<td>14,347</td>
<td>1,984</td>
<td>1,589</td>
</tr>
<tr>
<td>With related children 6-17</td>
<td>8,602</td>
<td>7,360</td>
<td>484</td>
<td>758</td>
</tr>
<tr>
<td>With related children under 6</td>
<td>4,479</td>
<td>3,942</td>
<td>224</td>
<td>313</td>
</tr>
</tbody>
</table>

### Income Below Poverty Level

<table>
<thead>
<tr>
<th>Income below poverty</th>
<th>Total</th>
<th>Black</th>
<th>White</th>
<th>Other Races</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent below poverty</td>
<td>20%</td>
<td>20.8%</td>
<td>17.2%</td>
<td>15.9%</td>
</tr>
</tbody>
</table>

### Income last year below specified poverty level

<table>
<thead>
<tr>
<th>Below 75% of poverty</th>
<th>Total</th>
<th>Black</th>
<th>White</th>
<th>Other Races</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 125% of poverty</td>
<td>31,031</td>
<td>25,090</td>
<td>2,254</td>
<td>3,686</td>
</tr>
<tr>
<td>Below 150% of poverty</td>
<td>38,163</td>
<td>31,100</td>
<td>2,704</td>
<td>4,358</td>
</tr>
<tr>
<td>Below 200% of poverty</td>
<td>50,456</td>
<td>41,007</td>
<td>4,002</td>
<td>5,536</td>
</tr>
</tbody>
</table>

### Table 68: Poverty Status: Territory (Eastern Caribbean Center and University of the Virgin Islands, 2015; issued 2018)

Meal programs are often based on the amount of income a household brings home monthly. For example, The SNAP benefit formula targets benefit according to need: very poor households receive larger benefits than households closer to the poverty line since they need more help affording an adequate diet. The benefit formula assumes that families will spend 30 percent of their net income for food; SNAP makes up the difference between that 30 percent contribution and the cost of the Thrifty Food Plan, a diet plan the U.S. Agriculture Department (USDA) establishes that is designed to be nutritionally adequate at a very low cost. A family with no net income receives the maximum benefit amount, which equals the cost of the Thrifty Food Plan for a household of its size (Center on Budget and Policy Priorities, 2019).

The table below details the maximum allotment of SNAP funds based on a household’s eligibility.
Education

Food pantries are working to reduce childhood hunger by providing direct access to free and nutritious food to elementary, middle, and high school students in need. Meal programs reduce the negative impacts of hunger, so children are ready to learn in school and succeed in life. These food pantries are often managed by school staff to ensure children with the greatest need have direct access to food. Students are provided fresh food, canned and dry goods, proteins, fruits, vegetables, pastas and rice, breakfast foods, snacks, shelf stable milk, 100% fruit juice, and other food items (BackPack Beginnings, 2014; Mitric, 2014).

Wellness

The SNAP program is a meal assistance program that is utilized in the Virgin Islands. SNAP is the primary source for nutrition assistance for many low-income families. It helps to improve food security and is associated with improved health both short-term and long-term (Carlson & Keith-Jennings, 2018).

SNAP State Activity Report (Foodshare, 2017)

- Average monthly snap participants: 27,760
- Number of households participating: 13,068
- Total Issuance: $56,766,573

The table below shows the poverty status of residents in the territory.

<table>
<thead>
<tr>
<th></th>
<th>SNAP Children</th>
<th>Share of State’s Children Receiving SNAP</th>
<th>SNAP Households with Children</th>
<th>Average Monthly SNAP Benefits, All Households with children</th>
<th>Percentage of SNAP Households with Children; Gross Incomes Under 51% of Poverty</th>
<th>Percentage of SNAP Households with Children, with Gross Incomes Between 51-100% of Poverty</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>19,891,200</td>
<td>27%</td>
<td>9,509,900</td>
<td>$393</td>
<td>45%</td>
<td>37%</td>
</tr>
<tr>
<td>Virgin Islands</td>
<td>12,500</td>
<td>6,300</td>
<td></td>
<td>$524</td>
<td>53%</td>
<td>30%</td>
</tr>
</tbody>
</table>

Table 69: SNAP Participants: Virgin Islands (Center on Budget and Policy Priorities, 2017)
The WIC (Women and Infants) meal assistance program is also utilized in the territory. WIC is associated with improved birth outcomes and improved infant feeding practices. This can lead to improved physical and cognitive development in children and improved diets for children and mothers. (USDA Food and Nutrition Service, 2013)

Below are WIC participation numbers from April-September 2018.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Women</td>
<td>706</td>
<td>721</td>
<td>740</td>
<td>735</td>
<td>744</td>
<td>732</td>
<td>692</td>
</tr>
<tr>
<td>Total Infants</td>
<td>644</td>
<td>655</td>
<td>683</td>
<td>689</td>
<td>717</td>
<td>711</td>
<td>650</td>
</tr>
<tr>
<td>Total Children</td>
<td>1,495</td>
<td>1,517</td>
<td>1,484</td>
<td>1,513</td>
<td>1,523</td>
<td>1,533</td>
<td>1,495</td>
</tr>
<tr>
<td>Total Participants</td>
<td>2,845</td>
<td>2,893</td>
<td>2,907</td>
<td>2,937</td>
<td>2,984</td>
<td>2,976</td>
<td>2,836</td>
</tr>
</tbody>
</table>

Table 70: WIC Participation: (Food and Nutrition Science, 2018)

Virgin Islands school districts also participate in federally funded breakfast and lunch school meal programs.

Below are participation numbers of students who qualified for the Free and Reduced Lunch program from 2014-2018.

<table>
<thead>
<tr>
<th>School Lunch Total Participation</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Lunches Served</td>
<td>13,112</td>
<td>12,050</td>
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<td>5,001</td>
</tr>
<tr>
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<td>3,243</td>
<td>955</td>
</tr>
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<td>514,279</td>
<td>158,551</td>
</tr>
<tr>
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<td>7,707</td>
<td>7,015</td>
<td>3,916</td>
<td>4,346</td>
</tr>
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<td>183,324</td>
<td>227,925</td>
<td>222,208</td>
<td>185,908</td>
<td>115,618</td>
</tr>
</tbody>
</table>

Table 71: Free and Reduced Lunch (Food and Nutritional Service, 2018)

**Policy**

Food pantries often receive donations from local fruit and vegetable growers. Because food safety begins at the farm level, food pantry workers may ask questions to ensure donated foods have a low food safety risk. It is important for food pantry clients to receive donated produce that is safe and provides nutritional benefits to them. That being said, food pantries must ensure their products meet necessary safety standards upon arrival and also while being stored prior to pick-up by customers. Food pantries must also keep in mind the healthcare of their clients and to provide all the necessary resources to food insecure individuals in their communities (Sarasohn, 2017; Shaw, Strohbehn, & Meyer, 2013).

**Equity**

Food pantries promote food security rather than short-term assistance by addressing the underlying causes of poverty. Meal programs often include a client-choice pantry, monthly meetings with a project manager to receive motivational interviewing, and targeted referrals to community services. These result in outcomes of food security, self-sufficiency, and increased fruit and vegetable consumption (Echevarria, Santos, Waxman, Engelhard, & Del Vecchio, 2011; Martin, Wu, Wolff, Colantonio, & Grady, 2013).
Restaurants
Restaurants increase the availability of local food benefits to producers, consumers and business owners. By connecting local foods to restaurants, it increases profits, provides customers with high quality products, and builds the infrastructure for effective local food shed. The demand for local food is rising as customers are embracing the need for increased local food options. The National Restaurants Association is noticing more interest in what people are eating and where it comes from, thus leading to increased purchases from local and regional producers. Customers are demanding locally sourced protein and produce, environmentally sustainable options, healthy meals, restaurants that have personalized gardens.

Existing Restaurants: There are 240 reported retail food establishments in the territory.

Restaurant opportunities: While some restaurants are seeking out locally sourced products, there may be options to increase connections between farmers, fishers and restaurant owners.

Interviews:

“Want to go to local source, but it is challenging to find product at markets, need more direct delivery from farmers and need more collaboration in sales vs. competing” (Manley, 2019)

“[I] want Caribbean local and cultural relevance represented in restaurant” (John, TBD Restaurant, 2019)

“Every restaurant business has to have a business license and a food handling card” (John, TBD Restaurant, 2019)

“Starting to recycle…take recycling to Plaza Extra on Saturdays, recycling that goes here gets taken off island” (Sarah, Scoops & Brews, 2019)

“Attempting to recycle, currently able to do aluminum and trying to do plastic, backhauling is expensive- costs same to take things in to island as off island” (John, TBD Restaurant, 2019)

“For produce we could be growing everything in one container on-site” (Matt, 2019)

Environment:
Chefs have ability to grow their own food from gardens that allow them to have the “fresh” produce. Opportunities through restaurants growing their own food to allow consumers see where their food is coming from, while creating a unique atmosphere. Trends are showing that consumers want fresh dishes when dining out (National Restaurant Association, 2017).

Restaurant design and layout are also considered as an environmental aspect of restaurants. The design and layout of restaurant space can affect the productivity of the restaurant for culinary purposes and employee workflow. It can also influence the attractiveness of the space to consumers. (Inc., n.d.)

The map below showcases the restaurant locations across the territory.
The table below details the number of restaurants by type, including employment and wages associated with each business type.

<table>
<thead>
<tr>
<th>Eating and Drinking Places</th>
<th>Number of Establishments</th>
<th>Employment</th>
<th>Total Wages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cafeterias, grill buffets and buffets</td>
<td>2</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>Full-service restaurants</td>
<td>126</td>
<td>1,398</td>
<td>$23,169,488</td>
</tr>
<tr>
<td>Limited-service restaurants</td>
<td>98</td>
<td>1,065</td>
<td>$15,717,255</td>
</tr>
<tr>
<td>Snack and non-alcoholic beverage bars</td>
<td>14</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>Total (ocean industry)</td>
<td>240</td>
<td>2,463</td>
<td>$38,886,743</td>
</tr>
</tbody>
</table>

Table 72: Establishments, employment, and total wages by ocean industry, ENOW tourism and recreation sector, 2012 (Inc., 2016)

**Economy:**

Farm to table restaurants support local farmers and the economy. Chefs at the farm to table restaurants are wanting high quality and fresh products that are going to allow them to stand apart from their competitors. Below is a table that identifies employed civilian workers in food-related occupations in the territory (based on most current, available information):

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Total</th>
<th>Black</th>
<th>White</th>
<th>Other Races</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virgin Islands Territory</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Employed Civilian Workers*</td>
<td>29,107</td>
<td>23,450</td>
<td>3,245</td>
<td>2,412</td>
</tr>
<tr>
<td>Food Preparation and Service</td>
<td>2,378</td>
<td>1,908</td>
<td>321</td>
<td>149</td>
</tr>
<tr>
<td>Retail Trade (Eating and Drinking Places)</td>
<td>1,802</td>
<td>1,347</td>
<td>373</td>
<td>83</td>
</tr>
<tr>
<td><strong>St. Croix</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The St. Croix Recovery Plan suggests the creation of Small Business Industry Clusters: set up business industry clusters with local businesses that wish to participate; determine key goals and schedules; promote business to business links; develop public private partnerships; help gain access to additional markets; outline best practices of clusters; create a long-term plan for how the clusters will be managed, funded, and will grow and adapt to ever-changing needs of the business community. This could connect to restaurants as well as other retailers, processors and distributors. (Community Foundation of the U.S. Virgin Islands, 2018)

### Education

Restaurants can provide educational opportunities in the form of apprenticeships. These can give potential employees an overview of all parts of restaurants which gives them an array of education and experience (City & Guilds, 2015).

Restaurants can also educate consumers on where their food is coming from or produced, through marketing and branding strategies on menus and other marketing materials. This can help raise awareness of local foods in the community.

*See Awareness Campaign tactic for further information*

### Wellness

Restaurants can play a role in getting healthy food to consumers. Farm to table restaurants allow for produce to be locally sources and give consumers a wide variety of fresh produce that incorporated into their plates. There are also opportunities as these restaurants for consumer awareness and education (see Awareness Campaigns for more information). There is a direct relation between providing fresh food options and information on a menu with consumers holding a positive image of the business and research has shown that consumers are wanting healthy food options when dining out (LaJeunesse, 2014; The Opportunity Zones Database, 2019).

### Policy

It was identified that every restaurant business in the territory is required to have a business license to operate, distributed by the on-island health inspector and that all business owners are required to have a food handling card. However, food safety certifications are not required.

### Equity

Restaurants have the opportunity to create access to foods for all. For example, restaurants can take food allergies into consideration when creating their menus to allow for those with food allergies to be able to dine comfortably. They can also create access to desired, culturally relevant food for consumers.
Farm to School: Nutrition Education
Farm to School Nutrition Education programs educate children on agriculture, food, health and nutrition, where kids have an opportunity to learn through hands-on experience. Nutrition education is “any combination of educational strategies, accompanied by environmental supports, designed to facilitate voluntary adoption of food choices and other food- and nutrition-related behaviors conducive to health and well-being” (Tisch Center, Columbia University). Schools can provide nutrition education through hands-on learning, classroom activities and recipe development, school gardens, field trips, and the school lunch program (as well as breakfast and after-school programs where available).

Existing Farm to School Nutrition Education Programs: The Virgin Islands Farm to School initiative is building a comprehensive Farm to School Program. The goal is to link local producers with schools and increase the amount of locally sourced, culturally relevant products served in schools and improve access to fresh and nutritious options for the territory’s youth. School-based gardens have played a significant role in the strategy to grow new eating patterns and increase student’s engagement in science, math, environmental, and agriculture education through school garden activities. Currently, 50 percent of the schools in the territory have school-based gardens. (National Farm to School Network, n.d.)

Farm to School Nutrition Education Program Opportunities: Many schools are incorporating nutrition education currently, however, there may be opportunities to expand programming to include procurement of local products for things like taste-testing to both share nutritional aspects as well as procure and offer taste-testing of local products.

Interviews:
“Goal to have agriculture curriculum- want standards -looking at Georgia curriculum- Jr. High and High School -fill gap with teachers who use ag ed- would like to see DOA use FFA” (Hendricks, Department of Ag Education, 2019)
“Engaging students is important- education and future prosperity, farm to school program and engagement”
(Agriculture, 2019)

Environment
Farm to School nutrition education can be used in conjunction with school gardens. Nutrition education can be used to make the connection between growing your food and eating healthfully by implementing hands-on education in gardens and in the classroom.

See School Gardens for more information.

Economy
While Nutrition education is focused on different asset areas, purchasing of food from local farmers for taste tests and developing programs that may evolve into larger, whole-sale procurement opportunities for producers which can have an impact on positive financial impact for local producers.

Education
The EARTH Program provides the opportunity for Iowa State students travel to St. John for a summer or an entire semester to work, live and help in the community. ISU students assist with school gardens and help grow local fruits and vegetables sustainably. Service-learners have the chance to help teachers in culinary arts and environmental science classes and create learning opportunities for school children (University, n.d.).

Wellness
Farm to School nutrition education curriculum can encourage students to make healthy food choices. Good Food Coalition Farm to School Initiative states “the overall long-term goal of the Farm to School Initiative will be to improve healthy eating habits among school-age children throughout the Virgin Islands by increasing the amount of local fresh fruits and vegetables that are used in school cafeterias.” (Virgin Islands Food Food Coalition)
Policy

Virgin Islands Agriculture in the Classroom Program

- The Department of Education shall seek the assistance of other government agencies and private organizations that are involved in the area of agriculture education for development and implementation of an agriculture education curriculum guide composed of thematic units, lesson plans, and educational field trips that are aligned with the academic content standards of the Department of Education for grades Kindergarten through grade twelve.

- The Department of Education shall arrange for at least one workshop per year for each school district to provide training to public school teachers in the following areas:
  
  - how to use agriculture education to supplement and enhance the teacher’s existing classroom curriculum;
  - the development of agricultural curriculum activities applicable to students from kindergarten through grade twelve; and
  - how to properly conduct agricultural curriculum activities.

Each public elementary school in the Territory shall develop a school garden or greenhouse on the school grounds for use as an agriculture education resource. The Department of Education shall develop, research, and coordinate the best available practices regarding appropriate curriculum for school garden programs in kindergarten through 6th grade, in consultation with education and agricultural experts (Office of the Code Revisor, Legislature of the Virgin Islands, 2019)

Equity

Providing nutrition education through school curriculum gives all students the opportunity to learn about healthy food choices and develop healthy eating habits. Additionally, farm to school nutrition education can incorporate anti-racism tactics, learning about cultural relevance of products, and general appreciativeness for difference. “Education about food and farming is a proven approach for elevating the value of local agriculture and lifting up under-represented stakeholders in the food system” (National Farm to School Network, 2020)
School Wellness Policies
School wellness policies are official policies created by individual school districts to promote student and staff wellness. These policies are meant to establish an environment that supports healthy eating and physical activity. School wellness policies also work to prevent and combat childhood obesity and to make sure school nutrition guidelines are meeting the minimum for federal school meal standards. Each school district is responsible for creating a school wellness policy that is unique to the individual schools within their area.

Existing School Wellness Policies: Schools who participate in Federal Child Nutrition Programs are required to have a school wellness policy.

School Wellness Policy Opportunities: Schools who do not currently participate in Federal Nutrition Programs are not required to have a school wellness policy, however they are recommended for all schools to promote student and staff wellness.

Environment
School wellness policies can help implement programming that has an environmental focus. For example, school wellness policies can require that Farm to School curriculum be integrated into classrooms. One of the focus areas for Farm to School programming is school gardens. School gardens are areas of land where fruits, vegetables and other plants are grown by students and community members for recreation and as an educational aid. School gardens can increase school meal acceptance, enhance the educational process, supplement meals, and be a valuable nutrition education tool. School gardens also enhance aesthetics and can build leadership in students from caring for the garden (Hohenshell & Long, 2017; Pesch).

The table below showcases the number of students by school year enrolled in public school across the territory.

<table>
<thead>
<tr>
<th>School Year</th>
<th># of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015-2016</td>
<td>13,800</td>
</tr>
<tr>
<td>2016-2017</td>
<td>13,194</td>
</tr>
<tr>
<td>2017-2018</td>
<td>10,886</td>
</tr>
<tr>
<td>2018-2019</td>
<td>10,720</td>
</tr>
</tbody>
</table>

Table 74: Public School Enrollment for Territory, SY2015-2016 to SY2018-2019: (Caribbean Exploratory Research Center, 2019)

Economy
Local school wellness policies can impact the economy by mandating policies on local purchasing of foods. If schools are incorporating Farm to School components in their wellness policies, local produce can be purchased for cafeteria and classroom taste-tests, or to supplement salad bars. Purchasing from local farms and processors benefits local farmers, creates new jobs and keeps dollars local (Extension: Economic Impacts of Local and Regional Food Systems, n.d.; Purchasing, n.d.)

Schools who participate in federal school meal standards are required to have a school wellness policy. Below is a table comparing the number of school breakfast and lunch program meals from 2016-2017/2018-2019 in each school district. This represents students served by meal programs in the territory.

<table>
<thead>
<tr>
<th></th>
<th>St. Croix</th>
<th>St. Thomas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td>244,832</td>
<td>42,273</td>
</tr>
<tr>
<td>Lunch</td>
<td>668,058</td>
<td>227,537</td>
</tr>
</tbody>
</table>

Table 75: School Breakfast and Lunch Programs by School District, SY2016-2017 and SY2017-2018: (Caribbean Exploratory Research Center, 2019)
**Education**

Many standards for curriculum require that a nutrition education be taught in classrooms. School wellness policies can help strengthen nutrition education curriculum by creating stronger requirements or adding policies that support programs such as Farm to School, which integrates nutrition education into both the classroom and the cafeteria. Education for staff can also be included in school wellness policies as professional development for teachers and food service staff. This can include training on integrating required curriculum into the classroom or procurement and food prep training (Hohenshell & Long, 2017; 144, n.d.)

**Wellness**

Local school wellness policies play an important role in creating a model for healthy behaviors for students and staff in relation to nutrition and physical activity. Creating policies that promote environments where students and staff have healthy, balanced diets and are getting the recommended amount of physical activity per day can help combat poor eating habits and obesity rates (Hohenshell & Long, 2017; Centers for Disease Control and Prevention, 2017).

Overweight and Obesity Rates by Gender Territory Wide (Foundation H. J., Overweight and Obesity Rates for Adults by Gender, 2017)

- 54% of men are overweight or obese
- 75.3% of women are overweight or obese

The table below describes fruit and vegetable intake in the Virgin Islands as well as physical activity compliance and overweight and obesity numbers compared to the continental U.S. and Guam and Puerto Rico. When compared, the odds of meeting guidelines for fruit and vegetable intake was greater for the U.S. Virgin Islands.

<table>
<thead>
<tr>
<th>Total Sample</th>
<th>Mainland</th>
<th>Guam</th>
<th>Puerto Rico</th>
<th>Virgin Islands</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fruit and vegetable compliance</td>
<td>24%</td>
<td>23.76%</td>
<td>23.58%</td>
<td>17.52%</td>
<td>28.65%</td>
</tr>
<tr>
<td>Did not meet recommendations</td>
<td>76%</td>
<td>76.24%</td>
<td>76.42%</td>
<td>62.48%</td>
<td>71.35%</td>
</tr>
<tr>
<td>Physical activity compliance</td>
<td>49%</td>
<td>48.83%</td>
<td>46.07%</td>
<td>27.17%</td>
<td>43.09%</td>
</tr>
<tr>
<td>Did not meet recommendations</td>
<td>51%</td>
<td>51.17%</td>
<td>53.33%</td>
<td>72.53%</td>
<td>56.91%</td>
</tr>
<tr>
<td>Overweight and obesity</td>
<td>35%</td>
<td>34.58%</td>
<td>37.44%</td>
<td>22.26%</td>
<td>33.55%</td>
</tr>
<tr>
<td>Unhealthy BMI (≥18.5 to &lt;25) kg/m²</td>
<td>85%</td>
<td>85.42%</td>
<td>82.56%</td>
<td>67.74%</td>
<td>68.45%</td>
</tr>
</tbody>
</table>

**Policy**

School wellness policies established by the Legislature of the Virgin Islands:

**Establishment of school health program, medical and dental tests**

The Commissioner of Education, with the collaboration of the Commissioner of Health as hereinafter provided, shall establish, maintain and administer a school health program in the Virgin Islands. Such program shall include; health services, health education and instruction, and healthful environment (Office of the Code Revisor, Legislature of the Virgin Islands, 2019).

**Special nutrition programs**

In recognition of the demonstrated correlation between good nutrition and the capacity of children to develop and learn, and to more effectively meet the institutional needs of the children of the Virgin Islands, the Commissioner of Education is hereby authorized and directed to conduct special nutrition programs, including school lunches. Such programs shall be developed and conducted in full compliance with federal requirements for special nutrition programs. Nothing in this chapter shall be construed as authorizing programs which would disqualify the Virgin Islands from maximum federal funding of special nutrition programs under Title 42, Chapters 13 and 13A, United States Code, or any future amendments thereto.

The Virgin Islands Department of Education is hereby designated the “State Agency” for administration of special nutrition programs within the meaning of that term under applicable federal law. The Commissioner of Education may consult with the Commissioner of Health, the
Commissioner of Economic Development and Agriculture, administrators of charitable institutions, and the Commissioner of Human Services in administering the provisions of this chapter in order to maximize the effective delivery of services under the programs required by this chapter.

The Commissioner of Education, in consultation with the respective Insular Superintendents, shall designate within each district, a “school food authority” within the meaning of applicable federal law. Each “school food authority” shall be responsible for the administration of special nutrition programs within their respective districts (Office of the Code Revisor, Legislature of the Virgin Islands, 2019)

**Equity**

School wellness policies provide equitable access to healthy, fresh foods and physical activity opportunities to students. Providing these opportunities can help remove barriers to classroom learning and healthy lifestyle education. Wellness policies can help schools consider how to appropriately and equitably provide opportunities students may not receive outside of school (Hohenshell & Long, 2017; Get Healthy San Mateo County)
Education Centers

Education centers can take on many different forms and typically are geared to specific cultures, topic areas, or practice. Lifelong learning is engrained in all aspects of society and the concept has become a phenomenal educational trend in the past century; continuing to engage and understand history, new practices and general techniques of agriculture can provide ideas and catalysts for new program development, projects, etc. and influence research, technology, economics, and quality of life. Education Centers will also range in their ability to teach different ages of learners, ranging from preschool to the elderly and can vary in focus areas, from skill building to advanced resources and technical assistance.

Existing Education Programs and Centers:
- St. George Village Botanical Garden, St. Croix
- Coral World Ocean Park, St. Thomas
- Annaberg Plantation, St. Croix
- The Sustainable Living Center, St. John

Education Center Opportunities: A new education center is not needed, however, there may be opportunities to collaborate with existing centers on new educational programming around food systems topics.

Interviews:

“Would like to see a cultural community center to keep the culture alive” (Ital, 2019)

“We need some kind of community center and we need to be able to see what grows best here…fresh foods not off boats” (Ital, 2019)

“would like to see after school programs for kids, senior citizen programs, and a place to host meetings” (Beverly, 2019)

I believe our community needs a cultural community center to keep the culture alive. St. John is not just a tourist destination, there are people who actually live here. (Ital, 2019)

Environment

Education plays a key role in preservation and conservation practices and awareness. Research indicates experiential learning in an immersive classroom setting is an effective approach for environmental-based programs that foster critical examination of natural order and systems while dissolving the barrier between the classroom and nature. Generating a personal connection to the environment leads to a sense of care and responsibility that endorses informed action. Incorporating outdoor play in education settings also promotes increased physical activity (Henderson, 2015; Littledyke, 2008).

Island Green Living Association, located on St. John, is an organization whose mission is to, “Transform the United State Virgin Islands into a net zero waste, carbon-neutral territory in order to protect the environment and ensure the health, welfare and economic security of the islands and its people.” (Island Green Living Association, 2019) Their current projects include recycling, reef conservation, ban plastic, green businesses, and providing Green Certifications for local businesses. The Sustainable Living Center is an accepted plan to construct a community center that will feature a multitude of educational opportunities and resources for sustainable living for both island residents and visiting tourists and individuals. The completed center will feature the following: (Island Green Living Association, 2018)

- Revitalized ReSource Depot and thrift shop
- Expanded recycling/upcycling facilities for aluminum, glass, plastic and cooking oil
• Composting center and demonstration area
• Solar power station with storage
• Water collection and recycling system
• Community center and gardens, organic food co-op and farmers market
• Learning center for green job training and production of recycled products
• Visitor’s center for education about green issues and eco-tourism offerings
• EV charging station for electric cars

These first three features: revitalized ReSource Depot and thrift shop; expanding recycling and upcycling facilities; and composting center would redirect materials away from landfills, minimizing detriments currently occurring in the Territory.

Economy
Advanced education is also an indicator of a healthy community. Education centers are typically seen as investments for communities and communities that provide higher education have higher return investment on economic development, offering new businesses and increased employment opportunities (Mitra; Schneider, 2013; Ventura, 2018).

Education
Keeping the cultural identity of the Virgin Islands, through food and cultural practices, has been identified as a point of interest. An education center could allow for educational classes that focus on keeping the culture of the Virgin Islands relevant and educating younger generations on cultural practices.

Education centers enhance children’s critical and creative cognitive skills, encouraging asking questions and investigating complex issues and systems. Many studies signal the importance of individual student learning—adapting lesson plans to adhere to children’s needs and creating a socially-dynamic setting (Blom-Hoffman, 2004; Galt, 2012).

Wellness
Well-balanced physical and mental health are strongly correlated to educational attainment. Research shows profound benefits on individual health, such as elongated life expectancy, increased accuracy of self-reporting skills, and decreased rates of risk behavior. Advanced education is an indicator of cognitive health which enhances personality traits, emotional stability, and situational awareness (Hahn & Truman, 2015; Furnee, 2008; Zimmerman, 2015).

Policy
Education has extensive policy implications from funding to classroom practices. Policy has the capability of bridging the gap between society and government by addressing issues of equity, health, safety, and economics. Many researchers signify the power of the role of the teacher, student or community member, encouraging the integration of ideological practices in the everyday setting of the classroom, taking small steps in advancing local communities (Anderson G. M., 2012; Furnee, 2008).

Equity
Achieving equity in education seems to be a constant uphill battle, with an abundance of research providing evidence on the treatment of minority groups in the classroom setting. Through this context, patterns of multi-generational cycles have emerged that hinder students’ access to quality education. Advancing education centers, resources, and community programs that address these inequities can produce favorable outcomes for students, increasing academic attainment, education opportunities and improving quality of life (Anderson G. M., 2012; Mitra).
Local Food Coordinators and Coalitions

Local Food Coordinators orchestrate leadership in their local food systems and to create sustainable relationships between producers, consumers, schools and other local food institutions. The Local Food Coordinator’s position is created to not only bring those stakeholders together, but also to help connect those stakeholders with each other as well as opportunities. Local Food Coordinators utilize their skills to impact multiple facets of the communities they work in; these facets include promoting food education, creating sustainable communities, constructing avenues for equal access to food for all and forming a foundation to make a stable local food system.

Coalitions are groups of community members and stakeholders that work together on issues within each asset area below. They can have a focus area or can touch all points in the food system.

Existing Coordinators and Coalitions: Virgin Islands Good Food Coalition

Coordinator and Coalition Opportunities: The Virgin Islands Good Food organization has built support throughout the territory with many volunteers and advocates, there are opportunities for additional local food coordinators to support this work as a collective effort. It may be worth pursuing options for the organization to have active “membership” or local food leader coordinators that self-identify on each island. Similarly, this organization and others have formed a loose coalition through local food leader and community food systems certification workshops over the last year. There may be opportunity to continue this network and develop a strong coalition that supports each other in food systems development across the territory.

Interviews:

“Food security is something that we battle every day; we don’t have a plan or a coalition in place—there are policies but there is nothing implemented” (Farmer, St. Croix 2, 2018)

“Opportunity for collaborative effort among the whole Caribbean…continued collaboration and coordination of intentional partnerships with incentive for participation” (Clinton Global Initiative breakout session notes, 2019)

Environment

When helping communities with local food efforts, Local Food Leaders often do that with sustainability in mind. Through this approach, communities are able to promote eco-friendly initiatives. Communities also look to the Local Food Coordinator to help educate them on ways to incorporate sustainable actions (Berg, 2016).

Economy

Local Food Coordinators bring together multiple stakeholders to create a new local food market. Local Food Coordinators create new opportunities for aggregation, distribution and processing. There is also a lot of economic and business development done by the local food coordinator that helps connect the producers and consumers (Gray, Vergin, Wentworth, & Fisk, 2016).

Education

Local Food Coordinators help with multiple areas of education. They educate on local food sources, hold sessions about resources and congregate stakeholders to gain more knowledge about their community. Lastly, they also educate community members on the impact local foods can make in their community (Topaloff & Chase, 2014).

A resilient food system within the USVI could be supported through training of local leaders. This could include conducting training for local food leaders on how to conduct food system assessments and advocate for better food policy. Establish youth-oriented agriculture programs to encourage the next generation of ag leaders. (Community Foundation of the U.S. Virgin Islands, 2018).
**Wellness**
Local Food Coordinators help implement healthy, fresh foods into communities. These local foods can help increase wellness in communities by creating projects surrounded by foods like community gardens, a food shelf and more. Overall, Local Food Coordinators help create healthy communities (Topaloff & Chase, 2014).

**Policy**
Local Food Coordinators can help create momentum around new policies. They do this by getting people behind local food movements as well as creating opportunities for alternative paying methods such as SNAP. They also help educate and assess various requirements for aggregation and procurement (AGree: Transforming Food & Ag Policy, 2015; Gray, Vergin, Wentworth, & Fisk, 2016)

**Equity**
Local Food Coordinators help bring food to everyone. They also bring social partners together to make an impact on the community as well as bringing healthy to food to people. They also create a community that reconnects farmers and consumers (Berg, 2016; Bruxvoort, 2016).
Resource Management

Resource management involves efficient and effective deployment and allocation of community and business resources as it relates to land, water, soil, plants, foods and created materials; it may include recycling, conservation, food waste and recovery, and general environmental stewardship.

The territory is comprised of mostly agriculture and forested property and has 175 miles of coastal area. Consideration of resource management thus includes practices for land, air, coastal and oceanic needs. Beaches and shorelines in the territory are used both commercially and recreationally, bringing in an average of 2,441,531 tourists each year (Bureau of Economic Research, 2019). This number has depleted in recent years due to natural disasters and the lack of resources for disaster preparation, making it more difficult to ‘bounce back’ after a storm. Additionally, climate is also impacting the territory economically and environmentally with tourism decreasing by 42% between 2013 and 2018; and the territory has experienced 14 square miles of change between 2002 and 2010 (Office for Coastal Management National Oceanic and Atmospheric Administration, 2019).

While there are existing outreach efforts on the decline of coral reef depletion, there may be a need to increase this outreach, especially through tourism channels, on ways the public can preserve the reefs that exist. There is a need to continue to elevate the unique culture and natural environment that exists due to the shoreline, ocean, and dynamic marine life around the islands.

Improvements to enhanced waste management strategies, programs and infrastructure are needed. The territory operates bin systems that allow for individuals to dump waste at appropriate locations which are then collected and transferred to landfills. VIWMA has hauled waste to two landfills, one in St. Croix and one in St. Thomas, both of which have violated federal laws and regulations. While there are current investigations and research being conducted on waste management sites, it may be needed to further address appropriate waste management strategies. By 2021 these landfills will no longer exist, making waste prevention and management a high priority. What little recycling that is done on-island in the USVI is shipped off-island for processing and acquires additional transportation costs and custom fees upon re-entry. The territory, including each island, will need to develop additional systems and infrastructure to manage this influx of waste.

The Task Force Advisory Committee has already declared organic waste recycling as a priority project in their 2018 report, stating that 30% of all waste produced by the territory is organic. What minimal efforts that do exist are not properly managed and seem to be commonly misused by residents. Community discussion has also revealed an immediate need for increased practices in organic waste management, recycling, and composting. St. John Island Green Living is currently working on a new center that would support in such activities. While there may be little economic gain through such programming, there are significant potentials for environmental stewardship if options are sought out. If practices such as this are able to work, this may be able to become a pilot for other islands and evolve into a largescale composting and recycling practice.

The territory still suggests purchasing bottled water due to constraints with accessing filtered and treated water supply. The territory has limited access to natural water and many use cisterns or rainwater catchment systems for water supply. Additional water supply and conservation practices may be appropriate to consider. Similarly, renewable energy resources through solar and wind energy could be useful. There are existing solar energy businesses within the territory. Many of the housing rebuilt after the 2017 hurricanes have also incorporated solar panels as a means for self-sufficient energy use.
Food Donation + Recovery

Food donation and recovery is the bridge between food waste and fighting hunger. Food recovery works to offer opportunities for individuals, organizations, and farmers to donate food that is not used rather than throwing it away. This can be done through gleaning programs at farms or supermarkets where non-sold goods are donated to food banks or can be offered through new programs like phone applications where individuals and businesses can link-up with food banks and food pantries for needed donations of food.

The U.S. Virgin Islands has minimal practices or efforts in food donation and recovery. There are no existing food banks in the Territory; however, there are multiple food pantries and meal sites that operate out of local churches. These provide possibilities of expanding food donation programs throughout the Territory.

Existing Food Donation Programs: The U.S. Virgin Islands has minimal practices or efforts in food donation and recovery. There are no existing food banks in USVI; however, there are multiple food pantries and meal sites that operate out of local churches. These provide possibilities of expanding food donation programs throughout the Territory.

Food Donation opportunities: Farmers and food businesses that have an abundance of food that is unable to be sold can consider donating product to charities and organizations that serve individuals in need.

Interviews:

Approximately 70% of the food eaten in our household comes from our garden. (Brown M., 2019)

Our community needs enhanced food security; lots of food is wasted due to short shelf life in stores, as well as having lower quality produce. (Vacharat, 2019)

Environment

Food donation and recovery indirectly reduces carbon emissions due to minimized amounts of waste being transported to landfills. It can also support in reducing waste that is left on the ground leading to pest control issues. By gleaning and bringing food to areas such as food pantries or food banks, the natural environment can be maintained while also supported food access.

Economy

Food donation minimizes the amount of waste that ends up in landfills, minimizing transportation and processing costs. It can also support in reducing personal costs for individuals that receive donated foods.

Education

Many organizations that conduct gleaning and recovery programs offer volunteer opportunities for individuals to learn about food waste and food recovery opportunities.

Wellness

Food donation programs can assist with access to food and providing healthy options for individuals who may not typically have them. They can support community well-being as well through community-supported gleaning programs that promote harvesting of public grounds for food donation.

Policy

Feed the Hungry Act: Liability of food donors: Notwithstanding any other provision of law, no person or entity donating food to a nonprofit corporation, nonprofit organization or governmental entity, without charge, or at a charge sufficient only to cover the cost of handling such food, shall be liable for civil damages for any injury arising out of the condition of such food; unless at the time of the donation, the food donated was knowingly misbranded or adulterated, or was manufactured, processed, prepare, handled or stored in a grossly negligent manner (Office of the Code Revisor, Legislature of the Virgin Islands, 2019).
Internal Revenue Code Section 170(e)(3): Under the IRC Section 170(e)(3) of the U.S. Tax Code, “a corporation is entitled to a deduction with respect to contribution to a public charity or to a private operating foundation of appreciated property” (Feeding America). This allows for businesses to deduct up to 15% of their taxable income. This bill was permanently extended in December of 2015 (Spoiler Alert, 2016).

**Equity**

Food donation is a way to combat hunger and provide community residents with access to needed food. Food donation and recovery can promote general community building and relationships.
Waste Prevention

Waste prevention consists of recycling, prevention of waste, waste management and is tied to food donation and recovery, composting. Management practices and efforts can occur on multiple scales, fostering an equitable and inclusive system that promote self-sufficiency and resilient communities. Through preservation and sustainable practices of our resources, our communities can continue into future generations.

Existing Waste Prevention: The Virgin Islands Waste Management Authority services approximately 15% of residential waste collection. The waste is collected at 20-cubic yard bins at various roadside locations on St. Croix, St. Thomas, and St. John then transported to landfills on Aguilla, St. Croix or Bovoni, St. Thomas.

Waste prevention opportunities: Considerations for waste-prevention may include awareness campaigns on how waste impacts the community in an equitable, environmental and economic way. Reducing waste occurs in various factors within organizations, businesses, lifestyles and at home. Waste audits and assessments may also be beneficial to fully realize and understand the waste and impact on the community.

Interviews:

Recycling and composting programs should be implemented on an island-wide scale. (Vacharat, 2019)

Goals for my business include repurposing as much as possible from the existing building (for when the next storm hits). I am attempting to recycle, currently able to do aluminum and trying to expand that to include plastics as well. I am able to give food scraps and oil to a farmer in Coral Bay that reuses the materials. Maho Bay Campgrounds in Eco Bay used to help with ecfriendly recycling but closed in 2013. (TBD, Owner, 2019)

I am beginning to recycle. I take materials to Plaza Extra weekly, which is then transported off island. Some local farmers reuse my coffee grounds and ice cream buckets from my restaurant. (Sarah, Scoops Brew, 2019)

Our company supported the Community Foundation and Coca Cola Project for a recycling initiative. (Suntory, 2019)

Our goal is to keep as much waste on island as possible. (Island Green Living Association, 2019)

Environment

In addition to recycling needs, there is also a need to create an area for organic waste, as this currently comprises 30% of the Territory’s waste. There are opportunities between organizations to develop a composting program and redevelopment of top soil and general environmental best practices. (Task Force Advisory Committee, 2018)

ISLAND GREEN LIVING ASSOCIATION | Recycling

Recycling initiatives to prepare for the closing of landfills in the Territory through fundraising efforts for equipment and facilities to properly manage on-island waste and awareness campaigns. According to the Association’s website, over 290,000 lbs. of material have been diverted from landfills since 2012 due to their ReSource Depot project. (Island Green Living Association, 2019)

Economy

The Territory currently has no recycling or composting programming. What little recycling that does occur is shipped off for processing and incurs additional transportation costs and custom fees upon reentry. Island Green Living on St. John has an existing recycling program. St. John has determined the following implementation steps in their recovery plan: review recycling studies and financial feasibility for recycling location; multipurpose recycling and composting facility. (FEMA, 2018)

Education

Coral Bay Community Council sponsored a Trash to Art Competition in partnership with Virgin Island Waste Management Authority. Students from Gifft Hill School and Eudora Kean High School, both located on St. John, repurposed various items and materials from landfills into art. (Virgin Islands Waste Management Authority)
Wellness
By minimizing waste in our environment, it supports a healthier lifestyle for residents. Green infrastructure promotes active living styles, reduces stress, enhances social capital, and increases home and property values. (Wolf, 2014).

Policy
The two landfills that exist in the Territory (Aguilla and Bovoni) have both violated federal laws and regulations regarding air quality pollution. The Environmental Protection Agency (EPA) has ordered a consent decree for the landfills to close by 2021. Burning is currently banned, including all storm-generated waste. (Task Force Advisory Committee, 2018)

Virgin Islands National Guard Family Readiness Groups partnered with Virgin Islands Waste Management Authority for an Easter event where over 90 baskets were made from repurposed landfill materials and provided to attending children. Additionally, families and children were invited to learn about the plastic bag ban and reusable cloth bags were distributed. (Virgin Islands Waste Management Authority)

ISLAND GREEN LIVING ASSOCIATION | Plastic Free
Island Green Living Association, based in St. John, was founded in 2004 and is a leading organization in resource recovery or the Territory. Focusing on conservation, environment, waste and a green economy, their mission is to “Transform the United States Virgin Islands into a net zero waste, carbon-neutral territory in order to protect the environment and ensure the health, welfare and economic security of the islands and its people.” Plastic Free is an effort to expand the use of reusable and compostable bags in lieu of plastic bags and support the Plastic Bag. (Island Green Living Association, 2019)

LAWS & POLICIES
Plastic Straw Ban: An Act amending title 29 Virgin Islands Code, chapter 8 to extend the ban on plastic bags to include disposable, plastic drinking straws, and plastic tubular stirrers and to allow the sale of reusable drinking straws. (Legislature of the Virgin Islands, 2018)

Redemption of Recyclable Materials; Redemption Centers: There is hereby established, under the direction and control of the Waste Management Authority, a program to reduce litter by encouraging the collection for recycling of certain containers and other recyclable materials in the Territory through a mechanism that would financially compensate persons for redeeming such materials and foster the establishment of redemption centers for the collection of such material to be in turn delivered to resource recovery facilities. (b) Every beverage container, paper product or other material which is offered for sale in the Territory and which is designated by the Waste Management Authority as recyclable and for which redemption centers have been established in the Territory shall have a minimum redemption value as set by the Waste Management Authority. (c) The public may return such recyclable materials to appropriate redemption centers and receive therefor, a payment of not less than the minimum redemption value, as set by the Waste Management Authority, from the redemption center. (Office of the Code Revisor, Legislature of the Virgin Islands, 2019)

Equity
Eliminating waste throughout the community connects to environmental justice and creating healthy and livable spaces for all people. Considerations for equity for waste reduction can be found by ensuring that all waste infrastructure is available throughout the community and for all individuals (Oregon Metro Council, 2020).
Composting

Composting food waste creates a product that can be used to enrich soils, helping them retain moisture and suppress plant diseases and pests, thereby reducing the need for chemical fertilizers while also promoting a higher yield of agricultural crops. Composting provides a method for reducing food waste that is ultimately ending up in the landfill and converts that waste into a value-added commodity that may be useful to school gardening programs, FFA chapters, onsite school landscaping, or may be of interest to community members including County Conservation or Master Gardeners. Composting can take place at many levels—backyards, block, neighborhood, schoolyard, community, and regional—and in urban, suburban, and rural areas. Locally-based composting circulates dollars in the community, promotes social inclusion and empowerment, greens neighborhoods, builds healthy soils, supports local food production and food security, embeds a culture of composting know-how in the community, sustains local jobs, and strengthens the skills of the local workforce. When composting is small-scale and locally based, community participation and education can flourish. Local governments benefit from composting as it diverts materials from landfills and incinerators; encourages local training, volunteering, and employment opportunities; and supports new businesses in green infrastructure and low-impact development.

Existing composting: On-island composting efforts are limited, occurring with only some local businesses and schools doing small-scale composting on their property: Gifft Hill School, St. John; Ritz Carlton, St Thomas; Sugar Brown Farms, St. Thomas.

Composting opportunities: On-island composting efforts is occurring but at relatively low rates, with only some local businesses and schools doing small-scale composting on their property: Gifft Hill School, St. John; Ritz Carlton, St Thomas; Sugar Brown Farms, St. Thomas. There is potential to expand composting and organic waste efforts within the Territory to include larger corporations and entities, such as the University of the Virgin Islands for educational and outreach efforts.

Interviews

  - We compost on our property—we changed the dirt for our garden from clay to topsoil. (Brown M., 2019)
  - Recycling and composting programs should be implemented on an island-wide scale. (Vacharat, 2019)
  - Materials, like mulch, are not being distributed fairly. There is some coordination on island to have mulch locations by farms but dropping is only occurring at one location. (We Grow Food, 2018)
  - There is a current mulch problem; there is potential to collaborate on composting programs on-island. (Dreeves, 2018)
  - There is potential to have a community composting site on-island. (Miner, EARTH Service Learning Program, 2019)
  - Our company comports on our property on St. Thomas and our sister hotel in Puerto Rico donates food. (Ritz Carlton, 2019)
  - Gifft Hill School on St. John collects waste from three restaurants for on-island composting, of which, some is shipped to St. Croix. (Ital, 2019)

Environment

Composting programs can improve the environment through minimizing on-island and water transportation, minimizing the amount of hazardous materials entering oceans and decreasing carbon emissions resulted from vehicles and landfill equipment and practices. Composting food and yard waste create a product that can be used to help improve soils, grow the next generation of crops, and improve water quality. Moreover, community-based composting is an ideal form of recycling, approaching the way ecosystems naturally function: few resources are lost from the system, all matter that was once alive is returned to the earth to support new life. It reduces truck hauling for managing garbage and for providing food. Compost reduces (and in some cases eliminates) the need for chemical fertilizers while also promoting a higher yield of agricultural crops. It can help aid reforestation, wetlands restoration, and habitat revitalization efforts by improving contaminated, compacted, and marginal soils. Compost can also be used to remediate soils contaminated by hazardous waste in a cost-effective manner and provide carbon sequestration.
Economy
Locally-based composting circulates dollars in the community, promotes social inclusion and empowerment, greens neighborhoods, builds healthy soils, supports local food production and food security, embeds a culture of composting know-how in the community, sustains local jobs, and strengthens the skills of the local workforce. When composting is small-scale and locally based, community participation and education can flourish. The local government also benefits from composting as it diverts materials from landfills and incinerators; extends life of regional landfills, avoiding cost and environmental impact of new disposal facilities; builds support for local municipal composting programs; and offsets stormwater costs (when compost is used in low-impact development). Composting also benefits the local economy as it supports local small-scale enterprises; encourages local training, volunteering, and employment opportunities; sustains more jobs on a per-ton basis than landfills or incineration; helps urban and rural farmers diversify farm products and increase farm income; and supports new businesses in green infrastructure and low-impact development.

On-island composting programs could benefit the Territory economically while simultaneously bettering the environment. Transportation and processing costs may decline due to less waste having to be taken off island to be managed elsewhere. Two landfills in the Territory—Aguilla, St. Croix and Bovoni, St. Thomas—will shut down by 2021 increasing the amount of waste that will need to be transported off the islands to be processed which will increase costs.

Education
Composting programs are minimal on-island, but many residents have discussed their potential and need. Composting could occur on multiple levels, (individual household, neighborhood, school district, community) and could be a potential opportunity for educating residents through awareness campaigns on what composting is, what materials are compostable and best methods for each scale. Similarly, this may include recycling and waste prevention methods and education in general. In addition to education and awareness, composting programs may kindle community collaboration, allowing and inspiring composting trends on a larger scale.

Wellness
Composting reduces the amount of carbon emissions released into the air from waste build-up in landfills. Composting enhances soil quality and health, allowing the soil to retain water, additionally improving air quality. Making compost keeps food scraps and yard waste out of landfills where they take up space and release methane, a potent greenhouse gas. Not only does it lower our carbon footprint, but it also enriches soil, helping retain moisture and suppress plant diseases and pests; reduces the need for chemical fertilizers; and encourages the production of beneficial bacteria and fungi that break down organic matter to create humus, a rich nutrient-filled material that is beneficial for plants. Compost adds nutrients to lawns and gardens, decreases soil erosion, increases water holding capacity, and kills weeds. Not only is it good for the environment, but it also contributes to our financial wellness. When we throw away food, we also waste all the water, energy, and natural resources used to produce, package, and transport food from farm to plate.

Policy
The two landfills that exist in the Territory (Aguilla and Bovoni) have both violated federal laws and regulations regarding air quality pollution. The Environmental Protection Agency (EPA) has ordered a consent decree for the landfills to close by 2021. Burning is currently banned, including all storm-generated waste (Task Force Advisory Committee, 2018). Landfills in some communities do offer composting options, and may be a potential to investigate, as composting is typically in an effort with waste infrastructure.

Equity
Composting reduces the amount of waste produced and can be done on any scale. Composting practices may create a ripple effect throughout a community, further minimizing the amount of waste that needs processing. Composting can take place at many levels—backyards, block, neighborhood, schoolyard, community, and regional—and in urban, suburban, and rural areas. There are many methods and sizes. This waste reduction strategy is not simply reserved for the experienced gardener or environmental expert; in fact, anyone can compost in their own homes. Methods include holding units, turning units and tumblers, heaps or piles, pit or trench composting, sheet composting or sheet mulching, in-vessel composting, and vermicomposting. Some cities also provide curbside services where residents can place their food and yard waste at the curb to be picked up and transported to the city’s compost facility, where it is made into compost.
Renewable Energy

Renewable energy is a substitute for fossil fuels that uses natural earth sources to create sustainable energy. Sources for renewable energy includes sunlight, wind, water, geothermal, biomass, and more. These sources are safe for the environment, with no pollutants or gas emissions. There is a positive correlation between renewable energy development and improved health. The energy being processed can be accessed in different ways depending on the system, for example, neighborhoods can connect via Smart Grid technologies across a geographic area. The renewable energy industry is continuing to grow rapidly, creating more job occupations within the area.

Existing renewable energy practices: solar businesses on STX and STT that offer solar infrastructure for businesses, organizations and residential properties across the territory

Renewable energy opportunities: Consider policies and partnerships that support the use of renewable energy practices across the territory. This may range from residential use of solar panels, biomass infrastructure, wind energy, etc. Collaboration on solar energy in the use of vacant or fallow fields, or storage containers may be a strategy moving forward for increasing under-utilized roof space.

Interviews:

Energy costs are the biggest hurdle; they effect so much of the Territory: cost of living, cost of food, and costs to store food. (St. John Resident, 2019)

WAPA bills increased after the storms of 2017 came through. My energy bills costs more than my business lease. (Vacharat, 2019)

Solar panels off the grid is a potential for building back. (Thomas M., 2018)

St. Thomas locals and transient communities are more interested in sustainable resources. So, there is way more pressure for development on St. Thomas. Clearing forests to build solar fields, for example. (Shelley, 2019)

In my three months living on-island and operating my restaurant, power costs have had two increases. (TBD, 2019)

Environment

Renewable energy serves as a safe and sustainable way to provide energy for the society while also protecting the environment. Installation of alternative energy systems have the potential to better the environment through minimization of greenhouse gas emissions, diminishing air pollution, and lowering dependency on fossil fuels while diversifying energy supply (United States Environmental Protection Agency).

Economy

The U.S. Virgin Islands Task Force has recognized the following as a Territory priority initiative, “Decrease dependence on fossil fuels and the local power grid by installing alternative energy power systems . . . This initiative will create approximately 10 full-time and five part-time new jobs” (USVI Hurricane Recovery and Resilience Task Force, 2018). The Environmental Protection Agency has declared “creating economic development and jobs in manufacturing, installation, and more” a local and regional benefit of renewable energy (United States Environmental Protection Agency).

Most of the community members interviewed—specifically those who owned businesses—expressed concern regarding energy and water systems on-island, explain that costs increase frequently and randomly. There is a lot of economic potential of installing alternative energy sources on-island. According to the U.S. Energy Information Administration, the USVI has strong solar power potential, installing solar panels on rooftops, for example, could provide up to 15 megawatts of power of the Territory’s generation capacity. The Territory has installed approximately 8.2 megawatts of large scale solar power generation capacity. (U.S. Energy Information Administration, 2018)
The Territory has some commercial wind energy potential with two promising locations on St. Croix and St. Thomas. In addition, there is renewable potential in waste-to-energy, landfill gas, and biomass energy. However, due to costs and the landfills closing, existing and potential projects in this area of alternative energy are no longer feasible. (U.S. Energy Information Administration, 2018)

**Education**

University of the Virgin Islands Go Green Initiative: This initiative’s mission is to “promote responsible environmental policies and practices … [and] strive to reduce our resource use and ecological footprint by the most efficient and effective sustainable practices … that improve the environmental health and viability of the Virgin Islands.” The University has implemented the following programs and practices on campus: recycling of plastic bottles on campus, in partnership with Coca-Cola Foundation; the use of reusable to-go containers in food venues; the use of green cleaning products and materials; an electric cart with solar charging panels on Albert A. Sheen Campus; and, solar powered water heaters on campus. The University is also exploring additional solar energy opportunities.

**Wellness**

Renewable energy reduces energy waste and lowers carbon footprints, positively influencing air quality, water quality and quality of life. Similarly, a positive correlation has been shown in residents that utilize renewable energy and their health.

**Policy**

Installation of Solar Equipment in New Developments: In the construction of new developments or substantially modified developments after the effective date of this subchapter, the developer shall use energy-efficient solar systems or heat pump water heaters for providing not less than 70% of water heating, unless the Commissioner of the Department determines that the use of such a system is not cost-effective or interferes or conflicts with the use of the building. The Director shall use the American Recovery and Reinvestment Act funding that is designated for rebates for the Virgin Islands, first for solar water heating system rebates for residences and government buildings. In issuing its building, construction, or development-related permits, the Department shall ensure that permittees comply with the requirements of subsection (a). (Office of the Code Revisor, Legislature of the Virgin Islands, 2019)

“In 2009, USVI legislature voted to require that 30% of WAPA’s (Water and Power Authority) peak demand generating capacity be from renewable sources by 2025 and increase thereafter until a majority of capacity is renewables-sourced.” (U.S. Energy Information Administration, 2018)

**Equity**

According to the Institute for Policy Studies, a new study has found that solar energy can benefit low-income households and neighborhoods through green energy installations. (Sen, 2017) Renewable energy serves a sustainable supply of energy for our future society. It can be accessed for household of all incomes in the country. Through different technologies, like Grid System, provides households energy through different geographic regions. Although, there is some challenges through low-income households to incorporate it, there is programs for these individuals to make it possible. Incentives for these individuals includes saving money in electric bills.
Land Conservation
Management of land through programs and practices that promote conservation of natural resources and environmentally sustainable options for sensitive or damaged areas. This may include programmatic issues such as land trusts for sustainable farming, conserved and protected land for natural wetlands, prairie or grassland. Additional practices that may promote land conservation is sustainable land management and storm-water management practices to support and sustain soil amenities and water quality.

Existing land conservation practices: Land Trust for Public Land is the only land trust within the USVI. Additionally, state and national parks exist on all islands within the USVI that conserve and protect land and water use.

Land conservation opportunities: increase land within land trusts for agricultural and local food production. There may be opportunities to partner with DNR and state and national parks on edible landscapes or programing on naturally occurring food plants, including historical and cultural education opportunities relating to the territory.

Community Discussion:
Conserving land for farming and gardening was mentioned in multiple conversations. While Department of Agriculture has property for farming, there may be additional opportunities through land trusts to reserve land from development. Discussions on suitable growing conditions were also shared during conversations and finding appropriate land for farmers to access. There were discussions about access for farming and fishing within both St. John and St. Croix, and potential collaborations for access to land and water by farmers and fishers for low intensity production or fishing.

Environment
The table below details the percent of land available throughout the territory for agriculture, forest, and other development. Most of the area of USVI is in agricultural and forest property.

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Land</td>
<td>11.5%</td>
</tr>
<tr>
<td>Arable Land</td>
<td>2.9%</td>
</tr>
<tr>
<td>Permanent Crops</td>
<td>2.9%</td>
</tr>
<tr>
<td>Permanent Pasture</td>
<td>5.7%</td>
</tr>
<tr>
<td>Forest</td>
<td>57.4%</td>
</tr>
<tr>
<td>Other</td>
<td>31.1%</td>
</tr>
</tbody>
</table>

Table 76: Virgin Islands Land Use: (CIA World Factbook, 2018)

The National Resources Conservation Service recommends the following principles for building healthy soils: (Creech, 2018)

- Minimize soil disturbance
- Maximize soil cover
- Maximize biodiversity
- Maximize the presence of living roots

Land Trusts
The Trust for Public Land - VI projects are listed below (The Trust for Public Land, 2019)
1. Castle Nugent: 1400-acre Castle Nugent Farms (largest privately held property) -STX- Cattle ranch raising- Senepol cattle
2. Coastal and Historic Land Protection- STJ/ STX/ STT
3. Estate Grange- STX - National historic site
4. Estate Maho Bay- STJ - September 2007- purchased 419-acre site
5. Hawksnest Bay- STJ - 1999 protected Gibney Beach in Hawksnest Bay- ranked one of the top 10 beautiful beaches in the world
6. Roosevelt Park – STT - Restore historic Franklin D. Roosevelt Park with private philanthropist
7. Salt River Bay National Historical Park and Ecological Preserve- STX - 120 acres protected
National Park Service

There are 5 national parks, monuments, and historical sites in the U.S. Virgin Islands: U.S. Virgin Islands National Park, located on St. John; Buck Island Reef National Monument, National Historic Site, and National Historical Park and Ecological Preserve, all located on St. Croix; and, Virgin Islands Coral Reef National Monument, located on St. John. (National Park Service, 2019)

“Almost every American City and town claims a little bit of the National Park Service. Communities invite us to help them. Together we build trails and playgrounds, return historic building to productive use, revitalize neighborhoods, expand affordable housing, protect watersheds, recognize and promote local history, and introduce the next generation to stewardship opportunities. When we combine our expertise and resources, we can accomplish great things.”

The U.S. Virgin Islands consists of 175 miles of coastal area with 106,405 individuals living in coastal populations. Between 1980 and 2019 there have been 5 disasters and the Territory has experienced 14 square miles of change between 2002 and 2010; this is associated with pastures and grasslands growing into shrubs. (Office for Coastal Management National Oceanic and Atmospheric Administration, 2019) Two-thirds of St. John is categorized as National Park; including beaches, historic beaches, historic sugar plantations, ancient petroglyphs, and marine coastal regions. (National Park Service, 2019) National Resources Conservation Service (NRCS) recommends four principles for building healthy soils: minimize soil disturbance, maximize soil cover, maximize biodiversity, maximize the presence of living roots. (Creech, 2018)

**Economy**

Conservation agriculture benefits small-scale farmers through higher production yields, minimized water usage, and minimal labor inputs (Cornell University College of Agriculture and Life Sciences). The table below details the type of products that are grown throughout the territory and their economic impact, or financial gain, from sales of each crop.

<table>
<thead>
<tr>
<th></th>
<th>Total # of Farms</th>
<th>Total Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field and Forage</td>
<td>37</td>
<td>$49,104</td>
</tr>
<tr>
<td>Vegetables</td>
<td>93</td>
<td>$366,195</td>
</tr>
<tr>
<td>Fruits and Nuts</td>
<td>117</td>
<td>$216,877</td>
</tr>
<tr>
<td>Horticulture Specialties</td>
<td>21</td>
<td>$946,636</td>
</tr>
<tr>
<td>Livestock</td>
<td>107</td>
<td>$462,540</td>
</tr>
<tr>
<td>Milk</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Poultry and Eggs</td>
<td>7</td>
<td>-</td>
</tr>
<tr>
<td>Fish and Aquaculture</td>
<td>1</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 77: Sales by Commodity: (USDA, 2009)
Education
USVI Ag Discovery Program teaches animal and plant disciplines; wildlife management; veterinary medicine; biotechnology; entomology; food safety; food production; agribusiness; and forestry through hands-on learning workshops, laboratory, and field exercises. (University of the Virgin Islands)

Wellness
Conservation practices play a key role in food safety in production which indirectly impacts other aspects of the built and natural environment. Conservation agriculture uses minimal water supply and reduces the movement and spreading of pathogens and pesticides into watersheds.

Policy
The U.S. Virgin Islands has multiple areas of land protected by policy: (The Trust for Public Land, 2019)
- Castle Nugent located on St. Croix: 1400 acre Cast Nugent Farm, which is the largest privately held property in the Territory. This farm is used for cattle ranching of Senepol cattle.
- Coastal and Historic Land Protection on St. Croix, St. Thomas, and St. John
- Estate Grange located on St. Croix, which is a national historic site.
- Estate Maho Bay located on St. John. This 419 acre site was purchased in September of 2007.
- Hawksnest Bay located on St. John. In 1999, this protected Gibney Beach in Hawksnest Bay, which is ranked on the top ten most beautiful beaches in the world.
- Roosevelt Park located on St. Thomas: Restored the historic Franklin D. Roosevelt Park with a private philanthropist.
- Salt River Bay National Historical Park and Ecological Preserve located on St. Croix protects 120 acres of land.

Equity
Access to equipment and land, along with soil quality are indicators of conservation and sustainable agricultural health. Access to these resources allow small-scale farmers to increase production yields, increasing their income and getting the most out of their land. The Red Cross does some work related to food systems in the U.S. Virgin Islands. One program worked with local farmers, where 302 farmers applied for up to $2,000 for structural assistance. (Red Cross, 2019)
Water Conservation

Water conservation practices can occur at multiple different scales from individual use, food business, farm or community planning strategies. This practice encourages utilizing water effectively and efficiently to conserve this limited resource and can include various forms of implementation from monitoring use, to implementation of site designs for water mitigation.

Existing Water Conservation Programs: Love City Strong, a St. John-based organization that focuses on disaster preparedness and wellness, has a program that conducts cistern water testing in communities. WAPA produces freshwater through reverse osmosis plants.

The U.S. Virgin Islands has little natural water; the majority of residents use cisterns to collect rainwater and have access to water supply through Water and Power Authority (WAPA). WAPA produces freshwater through reverse osmosis plants on St. Croix and St. Thomas.

Water Conservation opportunities: WAPA is the only entity in the U.S. Virgin Islands that provides water services for residents. There are some residents that do not have access to complete plumbing and only half receive water from WAPA, with the other 52% obtaining their water from a cistern or holding tank. There may be opportunities to expand programming focusing on educating residents on water-related wellness topics, such as proper methods for obtaining and storing water as well as increased resources for testing holding tanks may also be an opportunity. Additional opportunities, specifically for St. John due to population restrictions of programming, may be federal grant programs, such as the USDA Rural Development Water & Environmental Program.

Community Discussion:

Numerous farmers stated a need for water conservation techniques and best practices, as well as general supply for water.

Interviews:

We collect rainwater on our property for use in our home and garden. (Brown M., 2019)

The biggest on-island issue is water infrastructure: wells, cisterns, dams and holding capacities. The Virgin Islands budget is underfunded and has low capacity—improvements to the system need to occur. (We Grow Food, 2018)

We conduct cistern water testing; there is currently no oversite for management of cisterns. (Love City Strong, 2019)

Environment

Most residents in the Territory rely on bottled water for drinking water. On St. Thomas and St. Croix, WAPA or well water is re-filtered and bottled; which is certified by the Department of Health for safe use (Task Force Advisory Committee, 2018).

Drought poses serious threats to the Territory in most recent years more than ever. Wells that were once reliable are no longer dependable having gone dry or been contaminated. Ground water provides around 20% of the islands’ freshwater supply and the rapid depletion of groundwater is due attributed to poor soil management practices. Although rainfall records have remained consistent over time, most of the rainfall is lost through evaporation or runoff. Built infrastructure such as roadways, gutters, and storm sewers accelerate this loss (Natural Resources Conservation Service).
**Student Conservation Association (SCA) AmeriCorps Program**

“Members will protect, restore and enhance public lands and waters as well as natural, cultural, and historical resources through the following duties: educating others through interpretative programs, tours, or programs, providing visitor services, leading volunteers in service activities, removing invasive plants/planting native vegetation, trail restoration/creation, wildlife/fisheries banding, capturing, relocating, conducting surveys, assessments, or inventories, or conducting sampling…” (Corporation for National & Community Service)

**Love City Strong**

Love City Strong, located on St. John, is an organization that addresses disaster preparedness and community wellness needs. This organization fills a gap by conducting cistern water testing due to no formal oversite of cistern management. (Love City Strong)

**Economy**

Waste management in the U.S. Virgin Islands consists of: waste collection and disposal; and wastewater collection, treatment and disposal. The Virgin Islands Waste Management Authority (VIWMA) manages both systems. Infrastructure includes: bin sites, transfer stations, landfills, sewage pipes, pumping stations, and wastewater treatment facilities (Task Force Advisory Committee, 2018).

The table below describes the infrastructure for water management throughout the territory.

<table>
<thead>
<tr>
<th>Waste Management Resources</th>
<th>St. Croix</th>
<th>St. Thomas / St. John</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage Tanks</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Storage Capacity</td>
<td>20 MG</td>
<td>35 MG</td>
</tr>
<tr>
<td>Water Mains</td>
<td>190 miles</td>
<td>420 miles</td>
</tr>
<tr>
<td>Reverse Osmosis Plants</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Reverse Osmosis Production</td>
<td>3.6 MGD</td>
<td>2.3-3 MGD</td>
</tr>
</tbody>
</table>

*Table 78: Water Infrastructure in the USVI: (Task Force Advisory Committee, 2018)*

WAPA doesn’t provide potable water in all areas of the Territory; 50% to 80% of hotels and condos produce their own water with small reverse osmosis units. (Task Force Advisory Committee, 2018)

**Financing Development and Redevelopment**

“The U.S. Virgin Islands adopted tax increment financing in 2008 to promote development and economic growth in underdeveloped areas, preserve and enhance the tax base of areas needing redevelopment and restore and revitalize underdevelopment communities . . . Tax Increment Financing may be used to finance a variety of costs and improvements pertaining to public infrastructure, land acquisition, demolition and utilities, including the following: sewer expansion and repair, water supply, street construction, affordable/low income housing, libraries, schools, traffic control, park improvements, parking structure, utility lines.” (United States Virgin Islands Economic Development Authority)

*This opportunity poses the potential to develop/implement water conservation systems/incorporate water mitigation into development.*

**Education**

Water is a public good, and there are many neighborhood, city-wide or state-wide efforts occurring throughout the nation on the importance of conserving water. Awareness campaigns may be used to reach a broad audience, causing a ripple effect throughout a community. Educational programs on this subject can lead to knowledge and behavior change, ideally leading to enhanced, efficient water-use practices and systems.

The USDA Rural Development Water & Environmental Programs (WEP) has 13 various programs related to water conservation on multiple scales. “WEP provides funding for the construction of water and waste facilities in rural communities and is proud to be the only Federal program exclusively focused on rural water and waste infrastructure needs of rural communities with populations of 10,000 or less. WEP also provides funding to organizations that provide technical assistance and training to rural communities in relation to their water and waste activities.” (USDA , 2019)
**Wellness**

Wastewater treatment plants could not operate during power outages which led to raw sewage in public streets. When not treated properly, pollution and issues regarding human health and the environment can occur (Task Force Advisory Committee, 2018).

**Policy**

The Department of Planning and Natural Resources (DPNR) regulates WAPA under the federal Safe Drinking Water Act; and also regulates cisterns, haulers and providers. The Public Service Commission (PSC) regulates rates and represents WAPA customers while the Department of Health (DOA) regulates bottled water resellers. Past issues: have violated and failed to meet requirement for federally mandated EPA programs. EPA: Clean Air and Water Act, Clean Water Act, and Safe Drinking Water Act. VIWMA is mandated to bring systems into compliance and was created in 2004. It will close 2 landfills by 2021 and bring wastewater treatment and disposal to EPA standards. The estimated cost of 2 new landfills is $21 million. Costs of closure are estimated at $65 million (Task Force Advisory Committee, 2018).

FEMA has identified the following actions related to waste water in the Territory: hydrology and watershed studies are needed to evaluate watershed districts; runoff and stormwater flow needs to be evaluated; and, updates to the wastewater treatment plant need to occur (FEMA, 2018).

Anchoring and fishing are prohibited in the Virgin Islands Coral Reef National Monument. Bait fishing is allowed in Hurricane Hole, and fishing for blue runner (hardnose) is only permitted in designated locations near Cabritte Horn Point. Each activity requires a permit from the National Park Service (Department of Planning and Natural Resources Division of Fish and Wildlife, 2018).

**Equity**

Over 4.5 million gallons of wastewater is collected daily and more than 200 miles of sewer lines deliver waste to one of 30 VIWMA pumping stations, which then are transported to sewage treatment plants. Residents that are not connected to this system use private septic systems. When not treated properly—publicly or privately—pollution and issues regarding human health and the environment can occur (Task Force Advisory Committee, 2018).

The table below expresses the total number of residents in the Territory that either have access to plumbing, fresh water, and sewage disposal. There are many residents in the U.S. Virgin Islands that do not have access to fresh, clean water. Approximately 7% of residents in 2015 did not have access to complete plumbing, and over half of residents received their water from a public system. There is little programming occurring in the Territory that focuses on community outreach and educating residents on methods of obtaining and storing safe drinking water.

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Black</th>
<th>White</th>
<th>Other Races</th>
</tr>
</thead>
<tbody>
<tr>
<td>All occupied housing units: Total</td>
<td>42,992</td>
<td>34,047</td>
<td>5,777</td>
<td>3,168</td>
</tr>
<tr>
<td><strong>Complete Plumbing</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With piped water, toilet, bath</td>
<td>39,925</td>
<td>31,648</td>
<td>5,381</td>
<td>2,896</td>
</tr>
<tr>
<td>Does not have complete plumbing</td>
<td>3,067</td>
<td>2,399</td>
<td>396</td>
<td>272</td>
</tr>
<tr>
<td><strong>Source of Water</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public system only</td>
<td>10,631</td>
<td>9,357</td>
<td>510</td>
<td>765</td>
</tr>
<tr>
<td>Public system and cistern</td>
<td>9,605</td>
<td>8,109</td>
<td>555</td>
<td>941</td>
</tr>
<tr>
<td>Cistern, tank, drum, or lake</td>
<td>22,592</td>
<td>16,538</td>
<td>4,649</td>
<td>1,405</td>
</tr>
<tr>
<td>Some other source</td>
<td>164</td>
<td>43</td>
<td>64</td>
<td>57</td>
</tr>
<tr>
<td><strong>Sewage Disposal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public sewer</td>
<td>21,551</td>
<td>18,544</td>
<td>1,224</td>
<td>1,783</td>
</tr>
<tr>
<td>Septic tank or cesspool</td>
<td>21,152</td>
<td>15,250</td>
<td>4,517</td>
<td>1,385</td>
</tr>
<tr>
<td>Some other means</td>
<td>288</td>
<td>252</td>
<td>36</td>
<td></td>
</tr>
</tbody>
</table>

*Table 79: Water and Sewage, Territory: (Eastern Caribbean Center and University of the Virgin Islands, 2015; issued 2018)*
Fish, Wildlife, Coastal and Reef Management

Preservation of oceanic ecosystems’ health; including coral reefs, native species, resources, shorelines, tourism, cultural values, and marine life. This includes federal, state, or local programming and projects for conservation, community development, quality of life, climate change impacts, water quality, erosion, and pollution control.

Existing Coastal and Reef Management programs: The U.S. Virgin Islands Territory consists of 175 miles of coastal area, where 106,405 individuals are living in coastal populations. (Office for Coastal Management National Oceanic and Atmospheric Administration, 2019) There are multiple local and federal organizations and policies that protect reefs and shorelines in the Territory; such as, the Plastic Bag Ban, and the U.S. Virgin Islands Sunscreen Ban.

See Production- Fisheries for additional information

Coastal and Reef Management opportunities: Coral reefs in the U.S. Virgin Islands are facing many environmental and socioeconomic stressors. Many of these stressors stem from large-scale, systemic issues but there are some programming and interventions that can be done on the local and regional levels to relieve stress on coral reef ecosystems. Increased educational awareness for tourists and visitors may have the ability to negate harmful impacts caused by recreational activities. These awareness opportunities may lay in expressing information on policies, current issues and multi-scale practices that deter the mistreatment of beaches, coastlines, and marine life.

Interviews:

My work is in relation to reef responsibility and seafood sustainability. Mainly, helping to build capacity for organizations. (Lewis, 2019)

Environment

Climate change, tourism, recreation and commercial use, as well as cultural aspects are all indicators of reef ecosystem health, which is directly tied to coastlines. The Coral Reef Information System states:

The biologically rich coral reef ecosystems in the USVI consist of a mosaic of benthic habitats, principally hard coral and other hard bottom areas, seagrass meadows, and mangrove forests that are home to a great diversity of organisms. These coral reef ecosystems provide, inter alia, shoreline protection and support valuable socio-economic activities. Coral reefs in the USVI and reefs elsewhere in the Caribbean face similar environmental stresses which include climate change, diseases, storms, coastal development and runoff, coastal pollution, tourism and recreation, fishing, and groundings. (National Oceanic and Atmospheric Administration, United States Department of Commerce)

These stressors indicate the direct and indirect recreational and industrial interactions between humans and the ocean. A survey conducted by the National Oceanic and Atmospheric Administration found the following results for frequency of survey respondents participating in either recreational or extractive activities.

The figure below indicates all the marine-managed areas in the U.S. Virgin Islands, along with management details. There is an approximate total of 388 square kilometers (148 square miles) of marine area in the Territory.
There are five National Parks in the Territory, of which, three of the five directly relate to Coastal and Reef Management, as well as conservation: (National Park Service, 2019)

- Virgin Islands Coral Reef National Monument, St. John
- Buck Island Reef National Monument, St. Croix
  - Uninhabited land that includes over 18,000 acres of submerged, marine lands.
- Salt River Bay National Historical Park and Ecological Preserve, St. Croix
  - Unit of the National Park Service that preserves upland watersheds, mangrove forests, and estuarine and marine environments that support threatened and endangered species

**THE ST. CROIX EAST END MARINE PARK (STXEEMP):**

STXEEMP is the largest marine protected area in the Territory, totaling an approximate 60 square miles along a shoreline that is approximately 17 miles in length. STXEEMP was established on January 15, 2003 and consists of multi-use areas; including, Recreational Management, Turtle Wildlife Preserve Area, Area No-Take Areas, and Open Areas. (Atlas of Marine Protection)

The United States Coral Reef Task Force (USCRF) was established in 1998 and helps build partnerships, strategies, and support for on-the-ground action to conserve coral reefs. The Task Force has the following active working groups: (United States Coral Reef Task Force)

- Coral Health and Disease Consortium Working Group
- Education and Outreach Working Group
- Climate Change Working Group
- Enforcement Working Group
- Restoration and Intervention Working Group
- Mitigation Working Group
- Watershed Working Group
Coastal management for fisheries and fishing opportunities is critical in the Virgin Islands.

- 175 miles of coastal area (Office for Coastal Management National Oceanic and Atmospheric Administration, 2019)
- 106,405 individuals living in coastal population (Office for Coastal Management National Oceanic and Atmospheric Administration, 2019)
- The territory experiences 14 square miles of change between 2002 and 2010
  - Associated with pastures and grassland growing into scrub (Office for Coastal Management National Oceanic and Atmospheric Administration, 2019)
- Total value of reefs is related to tourism, recreation, amenity and coastal protection for fisheries
  - Value estimated at 187 million (Brander & van Beukering, 2013)

Southeast St. Thomas Marine Reserve and Wildlife Sanctuary

![Southeast St. Thomas Marine Reserve and Wildlife Sanctuary](DPNR, 2019)

East End Marine Park Management Zones

![East End Marine Park Management Zones](DPNR, 2019)

Climate

- Temperatures are likely to increase by 1.4-2.6 degrees by 2050s
- Trends indicate the USVI will become drier throughout the year
  - This may increase the likelihood of wildfires as well as new constraints for production and general environmental resource management
- rising sea levels will also impact the territory; which may lead to salinization of reservoirs in the territory
- climate change will impact health of reef systems and their ability to support and recover after disturbances

### Monofilament Recycling Program

Division of Fisheries and Wildlife implemented a monofilament recycling program to encourage recycling of resources from fishing. PVC pipes can be found throughout the territory for discarding materials. (DPNR, 2019)

### Economy

Many different activities and revenue can occur due to coastal and reef assets. The chart below describes the amount of activity happening within the reef.

#### Activity Type

<table>
<thead>
<tr>
<th>Activity Type</th>
<th>Activity</th>
<th>Once a month or less</th>
<th>2-3 times a month</th>
<th>4 times a month or more</th>
<th>Never</th>
<th>Not Sure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Recreational</strong></td>
<td>Swimming/wading</td>
<td>28%</td>
<td>15%</td>
<td>36%</td>
<td>19%</td>
<td>2%</td>
</tr>
<tr>
<td></td>
<td>Snorkeling</td>
<td>20%</td>
<td>9%</td>
<td>16%</td>
<td>54%</td>
<td>2%</td>
</tr>
<tr>
<td></td>
<td>Recreational Diving (SCUBA)</td>
<td>10%</td>
<td>3%</td>
<td>4%</td>
<td>82%</td>
<td>2%</td>
</tr>
<tr>
<td></td>
<td>Waterside/beach camping</td>
<td>24%</td>
<td>3%</td>
<td>4%</td>
<td>69%</td>
<td>1%</td>
</tr>
<tr>
<td></td>
<td>Beach recreation</td>
<td>39%</td>
<td>15%</td>
<td>24%</td>
<td>20%</td>
<td>2%</td>
</tr>
<tr>
<td></td>
<td>Motorized Boating</td>
<td>24%</td>
<td>8%</td>
<td>13%</td>
<td>53%</td>
<td>2%</td>
</tr>
<tr>
<td></td>
<td>Non-motorized Boating</td>
<td>18%</td>
<td>4%</td>
<td>5%</td>
<td>71%</td>
<td>2%</td>
</tr>
<tr>
<td></td>
<td>Stand Up Paddle boarding, surfing, windsurfing, kitesurfing</td>
<td>11%</td>
<td>3%</td>
<td>3%</td>
<td>82%</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Extractive</strong></td>
<td>Fishing from shore</td>
<td>16%</td>
<td>4%</td>
<td>3%</td>
<td>75%</td>
<td>1%</td>
</tr>
<tr>
<td></td>
<td>Fishing from a boat, canoe or paddle board</td>
<td>14%</td>
<td>3%</td>
<td>6%</td>
<td>76%</td>
<td>1%</td>
</tr>
<tr>
<td></td>
<td>Gathering of marine resources</td>
<td>11%</td>
<td>3%</td>
<td>3%</td>
<td>83%</td>
<td>1%</td>
</tr>
</tbody>
</table>

Figure 34: Frequency of Participating, recreational Reef Activities: (Ross, Jacobs, & Callender, 2017)

The chart below shares the total number of visitors to the U.S. Virgin Islands from 2013 to 2018. This figure can be used in comparison with Figure 36 (above) to signify the correlation between the depletion of coastal reefs in the Territory with human activity.

![Graph showing visitor arrivals from 2013 to 2018](image)

Table 80: U.S. Virgin Islands Total Visitor Arrivals, FY2013 to FY2018: (Bureau of Economic Research, 2019)

Tourism is a major aspect that influences coastal and reef management, with the power to either help or hinder reef preservation. The coral system serves a critical role in spurring tourism and maintain small scale fishing industries. (FEMA, 2018) The total value of reefs is related to tourism, recreation, amenity, and coastal protection for fisheries. The value is estimated at $187 million. (Brander & van Beukering, 2013)

<table>
<thead>
<tr>
<th>Ecosystem Service</th>
<th>Valuation Method</th>
<th>Total Value (millions, US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tourism</strong></td>
<td>Travel Cost Method</td>
<td>96</td>
</tr>
<tr>
<td><strong>Recreation and Cultural Value</strong></td>
<td>Choice Experiment</td>
<td>48</td>
</tr>
<tr>
<td><strong>Amenity</strong></td>
<td>Hedonic Pricing</td>
<td>35</td>
</tr>
</tbody>
</table>
Coastal Protection | Hedonic Pricing | 6
Commercial Fishery | New Factor Income | 3
Total Economic Value | | 187

Table 8.1: Total Coral Reef Values for USVI (millions US$/year; 2007 prices)

The figure below indicates that tourism and recreation accounted for approximately 93% of total wages for the Total Ocean Economy in 2016.

<table>
<thead>
<tr>
<th>ENOW sector</th>
<th>Establishments</th>
<th>Employment</th>
<th>Total wages ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Living resources</td>
<td>1</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>Marine construction</td>
<td>2</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>Marine transportation</td>
<td>22</td>
<td>214</td>
<td>$11,030,080</td>
</tr>
<tr>
<td>Offshore mineral resources</td>
<td>5</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>Ship and boat building</td>
<td>1</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>Tourism and recreation</td>
<td>373</td>
<td>6,524</td>
<td>$161,751,217</td>
</tr>
<tr>
<td>Total</td>
<td>404</td>
<td>6,738</td>
<td>$172,781,297</td>
</tr>
</tbody>
</table>

Figure 35: Establishments, employment, and total average annual wages by ENOW sector (Clements, Feliciano, Almodovar-Caraballo, & Colgan, 2016)

USVI Economic Development Authority: Hotel Development Program
With miles of pristine coastline and large expanses of land ideal for golf courses, the U.S. Virgin Islands is ripe for hotel and resort development. The Hotel Development Program is designed to assist in the development of new hotels, resorts and other related tourism facilities in the U.S. Virgin Islands. The legislation allows hotel developers to use a portion of their hotel occupancy and casino taxes to repay long-term loans, which can help in obtaining financing for projects. Monies generated from the Hotel Development and Finance Program are deposited into a separate hotel development and finance trust fund which is established for each approved project. Currently, there is a proposed extension and expansion of the Hotel Development Act of 2011. The extension and expansion of the Act, which was originally limited to the islands of St. Croix, St. Thomas and St. John, will allow ample time for the application process for developers considering investment in any of the islands, including Water Island, a quiet 492-acre island, located in Charlotte Amalie harbor just off St. Thomas. (United States Virgin Islands Economic Development Authority)

See Fisheries for additional information

Education
The US CRF developed a USVI Local Action Strategy (LAS) focused on the protection of coral reefs in the territory and identifies four implementation actions with their estimated costs (United States Coral Reef Task Force, 2005). Educational and outreach efforts that teach adults and youth the importance of coral reef systems are integral to their conversation. Visitors and residents of the islands need to be aware of the threats facing coral reefs and the things they can do to protect them. The aim of the LAS for this focus area is to expand and improve reef awareness and promote behavioral change through environmental education.

Wellness
In addition to the environmental impacts on coral reefs, there are also strenuous impacts on physical human health. Some of the major contributions to the human health detriments lay directly in relation to the environment; for example, overfishing, pollution, climate change and rising ocean temperatures are factors of overall ocean health. Coastal ecosystems around the globe are impacting human health and nutrition, leading to systemic dietary challenges and diseases—specifically in coastal populations. (Golden, 2019) Rising ocean temperatures cause fish to toward the poles, leading to “an enormous decline and reduction in fish catch along the areas of the equator . . . This rapid decline of fisheries will be destabilizing food security and impacting human nutrition in a variety of way.” (Golden, 2019) Coastal communities around the globe that rely on the ocean for food will see detrimental impacts on both physical and socioeconomic health.
Policy

See Production- Fisheries for specific policies regarding recreational or commercial fishing

Save Our Reefs is an effort to protect coral reefs through banning sunscreens with the following harmful chemicals: oxybenzone, octocrylene, and octinoxate (Island Green Living Association, 2019).

U.S. Virgin Island Sunscreen Ban: An Act amending title 27, chapter 9 of the Virgin Islands Code by adding a section 305h providing for a ban on the retail sale or offer for sale, and the distribution or importation for retail purposes of topical sunscreen products containing oxybenzone and octinoxate. (Virgin Islands Legislature, 2019) This ban was passed in June of 2019 and will take full effect through January of 2021 (Gonzalez Kotala, 2019).

“U.S. Virgin Islands Legislature passed a bill banning these unnecessary bags from the Territory. The vote was unanimous. In addition to leadership by the bill’s sponsor, Sen. Nereida River-O’Reilly, thanks goes to the Island Green Living Association’s energetic stewardship of this effort. Under Island Green’s President Harith Wickrema’s leadership, the organization helped to develop bill language plus provided testimony for this cause (including our own Doug White, an Island Green Living founder and officer)” (Plastic Free St. John, 2016).

Contract with the University of the Virgin Islands under the USVI Department off Property and Procurement “To monitor coral reef ecosystems in the Virgin Islands in collaboration with other federal and territorial agencies, including the National Oceanic and Atmospheric Administration (NOAA), and the National Parks Service (NPS).” The contract is posted for $300,000. (U.S. Virgin Islands Department of Property and Procurement)

Blue Economy

The Division of Economic Research of the Office of Management and Budget, the Virgin Islands Department of Planning and Natural Resources, and the Virgin Islands Economic Development Authority has enacted a plan to assist the Virgin Islands in “developing a sustainable blue economy” (Thirty Third Legislature of the Virgin Islands, 2020)

- Select qualities of Blue Economy
  - Sustainable use of ocean resources for economic growth, livelihood and ocean ecosystem
  - Ocean industries, fisheries, tourism, transportation, renewable energy, aquaculture, seabed activities, maritime biotech
  - Food security, poverty eradication, improved livelihoods, employment, health and safety
  - Productivity, resilience, value
- Governed by public and private processes
  - Allows for new businesses to open in territory relating to aforementioned qualities
  - A Plan to assist USVI in blue economy through planning for must be submitted by May 2021 and include:
    - Economic viability of blue economy
    - Financial needs for implementation
    - Direct and indirect opportunity results
  - Steps for developing blue economy
    - Assist in blue economy concept
    - Assistance in federal funding to assist with implementation

Equity

St. Croix identified protecting coral reefs, beaches and heritage trees as a community development project in their recovery plan, with determining the best ways to enhance reefs under warming temperatures has been established as an implementation step within this project. (FEMA, 2018)

The Territory experienced 14 square miles of change between 2002 and 2010. This change has been associated with pastures and grassland growing into shrubs. (Office for Coastal Management National Oceanic and Atmospheric Administration, 2019)
CONCLUSION

This assessment is meant to be a living document that should be updated regularly with new data and information. Each tactic, or section, within the sector shares relevant data and information related to the U.S. Virgin Islands.

For more information about research methods, tools, or next steps please reach out to the appropriate contacts below.

**Community Food Systems Assessment Process and Program:**

Courtney Long: Iowa State University Extension and Outreach, Food Systems Program Manager:  court7@iastate.edu

**Virgin Islands Community Food Systems Projects:**

Sommer Sibily-Brown: Virgin Islands Good Food Executive Director: sommer@goodfoodvi.org

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