

# APPLIED GLOBAL BUSINESS LEARNING FINAL REPORT: BELIZE 2025



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**INSERT THANK YOU TO BEE KEEPERS**

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## Economic and Demographic Overview of Belize

Belize, a small upper-middle-income country in Central America along the Caribbean, has a population of approximately 405,000 and a GDP of \$2.5 billion as of 2022. Although the per capita GDP stood at \$6,049, persistent economic challenges still exist. Public debt remains high at 72.8% of GDP, and poverty is widespread, with many Belizeans living near or below the national poverty line of \$10.85 per day. Although Belize is classified as a middle-income country, its structural vulnerabilities and institutional limitations reflect the characteristics of developing economies.

Belize's economic development has been deeply shaped by its colonial past. As a former British colony, the economy was shaped around the export of natural resources such as timber and agricultural goods, with little focus on industrialization or diversification. This legacy continues to influence Belize's economic landscape today.

One of the most significant structural constraints is the country's small population, which limits economies of scale and reduces competitiveness in global markets. Although Belize is rich in biodiversity, its economy relies heavily on finite resources, particularly tourism, agriculture, and seafood. This reliance on a narrow economy leaves the country vulnerable. This was seen during the COVID-19 pandemic. For instance, tourism, one of the country's largest sources of income, came to a standstill during global lockdowns, highlighting how economic dependence on a single sector can quickly lead to widespread job loss, reduced government revenue, and economic instability. In addition, a significant share of the workforce is employed in the informal sector or engages in subsistence farming. This limits formal economic development, tax revenue, and the government's ability to invest in infrastructure and social services. The country's export base is similarly limited, relying heavily on a few commodities like sugar, citrus, and seafood, which makes the economy susceptible to fluctuations in global prices and demand.

Institutional weaknesses also compound these challenges. Over the last two decades, Belize has defaulted on its sovereign debt five times, which reduces access to international financing and investor confidence. The country's sovereign credit rating, currently B/B- according to S&P Global Ratings, reflects this high level of fiscal risk. Inconsistent economic policies and weak public finance management have further hindered the establishment of a sustainable economic and financial framework, contributing to limited growth. Additionally, monetary stability is an area of concern. The Belizean dollar is tied to the U.S. dollar, and maintaining this fixed exchange rate requires adequate foreign exchange reserves (FER). As of 2022, Belize's FER stood at \$473 million USD. Historically, reserves have averaged \$209.95 million from 1993 to 2023, with a record low of \$34.10 million in 1994 and a peak in 2024. Belize's higher reserves in 2022 and 2024 are a good sign for economic stability however, it needs to continue to manage reserves to avoid failing into past and unstable patterns.

Ultimately, Belize is proposing new solutions to strengthen economic stability, including efforts to improve fiscal discipline, attract investment, and expand sectors like eco-tourism. While these national-level strategies help set the stage, cooperatives and initiatives like the Resilient Rural Belize (RRB) Programme are essential for guiding economic development at the local level. By supporting vulnerable rural families and farmer organizations, such as the Orange Walk Beekeepers Cooperative Society and the Corozal Onion Cooperative, RRB promotes inclusive growth, climate resilience, and

sustainable market access. These efforts are a vital part of Belize's broader push toward long-term economic stability specifically in the agricultural sector.

## Introduction to our projects and their industries

The Orange Walk Beekeepers Cooperative Society LTD, founded on May 13, 2022, is an organization of about 20 beekeepers who harvest honey and sell it for domestic consumption in Belize. Their cooperative provides financial and technical assistance, community, and a stable business environment for these small businesses entrepreneurs to receive an additional source of income. The honey industry in Belize can afford people a profitable line of work because there is sufficient demand and the barrier to entry is low enough for unskilled people to learn and become successful quickly. Domestic honey production accounts for most of the domestic consumption. The industry does grapple with illegal importation which hampers some domestic resilience.

The cooperative is relatively decentralized but adds important infrastructure for the group including a formal leadership structure. Members typically have their own equipment and land to conduct their beekeeping and work to support and increase efficiency together. However, there is a desire to bring this group closer together by improving the resources and capabilities of the cooperative. The goal being to standardize financial records and prepare for a separation from governmental supports in the future. Its leadership follows a standard organizational structure to manage all administrative duties. This includes a chairperson and vice-chairperson, secretary, treasurer, counselors, and the general members in a top-down manner. If the cooperative needed to add more roles for a growing organization, it could fit those positions in the current structure. The cooperative leadership does not dictate production goals for its member. In theory, the leadership could set goals for honey production of the cooperative owned aviaries. The primary goal of the cooperative is to better the financial resilience of each of its members and the long-term projects currently underway help to advance that objective.

Another player in the market is a pseudo-government agency called the Belize Market Development Corporation. It's vision is "To become a proactive and dynamic business corporation providing quality and wholesome products and efficient services to its customers in a timely, reliable and competitive manner." (see Brochure in Appendix 1) According to the act that created the agency in 2003, it is allowed to do the following: (Belize Marketing and Development Corporation Act, Chapter 281, Section 4) The Corporation may, with the consent of the Minister:

- a) identify markets locally, regionally and internationally for local agricultural products including shrimp and fish;
- b) link buyer, sellers, producers and processors of agricultural commodities for both local and export markets;
- c) conduct market research for specific requirements of domestic and foreign markets and disseminate such information across the relevant regions and territories;
- d) provide training for farmers, exporters, agro-processors and other traders for greater efficiency in the marketing of their commodities;
- e) collect daily prices for agricultural commodities and fish traded under the Ministry of Agriculture's community trade information service;

- f) facilitate agri-export insurance and financing;
- g) assist in the management of wholesale markets for agricultural produce and fish;
- h) facilitate consulting services in the area of marketing, business planning, feasibility studies, export development and agro-industrial projects;
- i) organize participation in trade fairs and exhibitions with a view of promoting the marketing of agricultural commodities;
- j) provide storage facilities for lease to the private sector;
- k) develop and ensure grading standards of agricultural produce;
- l) operate mills and similar plants for preparing and for processing any product of Belize;
- m) trade and deal in feeding stuffs for livestock, seeds, fertilizers and insecticides and such other commodities that may facilitate the operations of producers and food processors;
- n) establish depots and agencies for the purchase, sale and delivery of products of Belize and such other commodities as may facilitate the operations of producers and food processors;
- o) enter into contracts for the purchase, sale and transport of products of Belize and of agricultural equipment and farm commodities;
- p) act as commission agents for the disposal of the products of any producer or processor;
- q) act as commission agents for the purchase of supplies for any producer or processor;
- r) deal in commodities other than products of Belize, where it is necessary for maintaining supplies;
- s) insure the property of the Corporation against insurable risk; and
- t) invest, with the approval of the Minister, any moneys forming part of a reserve fund.

As a result, the BMDC is primed with the ability to determine the market power available to itself and the agricultural industries it supports.

Here's how the BMDC fits into the cooperative setup to provide for its financial stability. The coop receives revenue both from membership dues and honey sales. Members pay a one-time, \$1,000 joining fee and sell 80% of their honey to BMDC where \$0.30/pound of the amount sold goes to the collective. In addition to revenue through honey sales, the cooperative has a handful of investments to add to its financial stability. This includes 50 shares at \$5 each which can be bought and sold and a savings account that receives 7% interest. This funding source allows the cooperative to provide the material, administrative, and informative support to its members, which in turn advances the cooperative's financial standings. The BMDC here acts as a financial intermediary keeping the risk to the farmer at nearly zero and setting the prices for honey in the domestic market.

The variables which influence the cooperative's finances the most can be divided into two groups: honey sales and membership dues. Honey sales can be further broken down into the quantity of honey sold in terms of pounds and the quality at which it is sold. The cooperative members enjoy a rather unique position with their relationship to BMDC. In their most recent contract, there is currently no market limit for how much honey they can sell to BMDC. This has two implications for the cooperative. Members could increase their revenues by selling more honey to BMDC still not surpass all honey demanded.

Honey quality is a common metric of the honey industry which determines the grade of the product. While there are several variables which influence the honey quality, water content is among the most important and relevant variable which determine their quality. When the beekeepers sell their

honey, BMDC, the buyer, determines the quality of the honey using specialized equipment for this purpose. Currently, the cooperative sells their honey at \$3.75/pound for “Grade A” honey and \$3.50/pound for “Grade B” honey. All honey sold must meet at least “Grade B” standards. The cooperative is limited to the quantity of honey that can be produced by a single beekeeper times the number members in the cooperative. The quality of honey is limited by the knowledge and skill of each beekeeper.

As mentioned earlier, members may do whatever they chose with the remaining 20% of their honey production but must sell at least 80% of their honey production to BMDC. Notably, members could sell whatever amount of their 20% of the honey they produced to a different buyer. As stated by members of the cooperative, “it is their honey they can do with it what they want.” The price at which the cooperative sells their honey to BMDC is predetermined in an annual contract based on its quality. This quality is verified by BMDC using their equipment. One of the members does own her own testing equipment, but the cooperative as a whole does not. Another feature of the decentralized nature of the cooperative is collection of honey. Members are responsible for transporting the honey to BMDC using their own vehicles. It is common for people within the coop to share a vehicle when needed.

The relationship with BMDC has two principle features that benefit both parties. The cooperative negotiates contracts annually and BMDC provides stability and professional development to the cooperative members. Despite technically having a monopoly on the cooperative, BMDC is a stable customer and lends the members equipment when needed to ensure a constant supply of honey. An example of this is BMDC’s bee suit loans. The single most expensive and difficult to acquire item for a beekeeper is the protective suit, not the aviaries. If there is a tear in the suit it is unusable, BMDC will loan bee suits to keepers until they are able to purchase or repair their own suit. It is this trust and interest in development that underpins the relationship between BMDC and the Orange Walk Beekeepers Cooperative Society LTD. While unlikely, BMDC could swiftly disable the beekeepers, especially the novice ones if they chose to withdraw the extensive list of benefits provided to cooperative members.

The cooperative currently has a very decentralized nature but is working towards a more coherent group and structure. Despite efforts to provide a more centralized organization, the cooperative’s foundation will still rely on individual beekeepers producing their own honey on their own land. New features currently in development are a few cooperative owned aviaries, several beekeeping pieces equipment such as the aforementioned quality testing kit, and administrative infrastructure items such as a laptop and accounting software. These items would be housed in a cooperative owned facility on cooperative land. Due to the nature of Africanized Honeybees, the species used to make honey, aviaries have to be located in somewhat isolated areas which will not necessarily be near the described “Central Operating Facility.” Despite its decentralization, the cooperative owns and produces some of its own honey. Members must also volunteer some of their time to the growing number of cooperative owned aviaries. The cooperative sees 100% of the revenue from honey sold that is produced by these aviaries. The underlying purpose of the centralizing efforts are to assist cultivating skills, knowledge, and experience among all cooperative members. This cultivation will be especially helpful for recruitment and retention of younger people directly out of school, a suggestion given later in this report.

## Case 1: The Honey Industry

Our team was asked to review the business proposal sent to us by Joe Lisbey from Resilient Rural Belize.

Using the report as a guide, our team was asked to address the congruences with the current state of the cooperative and the proposal. Then we were asked to expand on the issues addressed and create a marketing strategy to allow the cooperative to be more independent. On March 8<sup>th</sup>, our team spent time conversing with the Honey Cooperative located in Orange Walk County. We asked questions regarding all aspects of their production. This included information about the cooperative's objectives, their deal with Belize Marketing and Development Corporation (BMDC), the status of the issues presented in the business proposal, information about those working in the cooperative, etc.

After meeting with members of the cooperative, it was clear that Resilient Rural Belize (RRB) and the Orange Walk Honey Beekeepers had a different vision for the cooperative's future. The goal given to us by RRB was to address the creation of a marketing program for the cooperative, placing more responsibility on the members of the cooperative. The members of the cooperative explained that they had no interest in the marketing or bottling of the honey. The members were either already well involved in the cooperative, with little excess time to add anything onto their task list, or honey was an income opportunity on the side of a different time-consuming career. Our meeting gave us insight into BMDC and the true relationship the cooperative holds with them. We shifted our focus from creating a marketing plan to finding ways the cooperative could expand and maintain the number of members they had.

### **Status of Presented Issues**

The first issue presented was the lack of capital. This issue related to the lack of excess money in the cooperative. Thus, creating an inability to invest in equipment and growth; therefore, risking the cooperative's ability for growth. We found that the relationship between the cooperative and BMDC allowed for immediate relief of this issue. BMDC offers cooperatives the ability to finance new equipment through them with no interest. BMDC may even give some equipment to cooperatives to help them get started. Utilizing the BMDC's policy, beekeepers are able to purchase equipment up front or over time with no additional cost. BMDC will take money from the beekeeper's pay for the honey to repay what they owe from the equipment. BMDC also has discounts on equipment making acquiring finances a smaller hurdle. Resilient Rural Belize has also been a source of financial boost. RRB is funding new equipment and bee suits for the cooperative to help expand their resources. The cooperative also charges fees to its members. To become a member there is an initial fee, then every year members are charged, and the money is put into stocks. This money is then given back to the members when they leave the cooperative, and if needed could be reworked into a financial boost for the cooperative.

The next issues build off of each other. One being a lack of access to land and the other a lack of a central operating office. These two issues then created the larger problem of decentralization decreasing productivity. The cooperative did not have a meeting space, storage space, community center, etc. and they did not have the land to build it. Our discussion allowed us to receive an update. The cooperative has secured land in the Pettiville area that is to be used for the new "Marketing" facility, or as we called it the Central Operating Office. The land will also house 25 bee hives given by RRB. Thus, allowing for growth in the cooperative with the ability of hive splitting as well as a new inflow of capital as the honey produced from those hives can be sold and the money can go straight to the cooperative's funding. Although the Central Operating Office is not built, we were able to get an update on the construction. The construction is projected to start in April of 2025 and be finalized the following September. The completion of the office will be essential to the growth of the cooperative. It will allow business operations to become much more streamlined, with information sharing, honey collection, collaboration, and planning, all occurring in one specific area that is available to all members in the cooperative. With a range of previous experience and knowledge in the cooperative, this space will allow for knowledge transfer and idea sharing to increase

productivity of all beekeepers in the cooperative. The share of information can also include fiscal transparency to ease members. Finally, the office can be used to store cooperative-owned equipment. The building itself will increase rapport between members, with improved communication, sense of belonging, and accountability.

Lack of technological infrastructure was another issue presented. The cooperative had no method of digitized and accurate record-keeping. This issue has since been improved with the acquisition of a computer and the incorporation of the software QuickBooks, with help from the RRB. At the moment, only one member has been trained to use the software. To improve the current state of this issue we recommend that the cooperative incorporate these best practices: Group training of the software, with multiple members able to use the software; having multiple people use the software and view the same metrics to “fact check” one another and maintain accountability; and standardizing the process with the same format used for the same data across the cooperative.

The last issue presented was climate change. Climate change can be incredibly harmful in honey production with its impact on both the bees and the hives. Climate change can drastically change vegetation in an area. This has been an issue for the bees as less food is available for them. The hives are impacted by the weather with the structure of the boards deteriorating faster. Unfortunately, this problem is global and can't be quickly solved by one honey cooperative in Belize. However, the cooperative is taking steps to combat the changing climate's impacts. First off, the cooperative uses Africanized bees. These bees are very aggressive, allowing them to fend off other bees. This aggression does create the need for more land as the bees need to be separated from people, even with suits the beekeepers must take extra caution for this species of bee. The Africanized bees aren't native to Belize however, they have become the primary bee population in Belize making their survival a smaller issue for the keepers. The cooperative is also taking educational steps to ensure that every member understands how to best take care of their bees, including inspection procedures of the hives and pest removal.

## Recommendations for the Honey Farmers Coop:

To strengthen the bee and honey cooperative in Belize, enhancing previous strengths while addressing challenges is crucial. Two major obstacles are membership and financial gaps, along with lack of education in the honey harvesting industry. It's difficult to attract new members, specifically younger individuals. Knowledge of the industry is sparse relating to honey collection and beekeeping. This limits connection and engagement by the next generation of beekeepers. If an individual decides to join, a \$1,000 cost of entry is required. This high fee of entry discourages potential new members, and limits accessibility for individuals with financial constraints.

A solution to encourage members to join prioritizes enlisting benefits through talent and recruitment. The beekeeping cooperative offers incredible assistance that should be shared. When joining the cooperative, financial credit is available. The BMDC has a credit system, where you can purchase discounted beekeeping equipment, and pay once income has been accumulated with no interest. This is an incredible system that can sooth apprehensive feelings and financial hardships when contemplating joining. Significant skills will be acquired when joining the cooperative. Qualities would include knowledge in beekeeping, hive management, administration skills, and safety practices. The beekeeping cooperative position would offer a great opportunity for hands on experience and obtaining new lifelong skills.

Leadership opportunities are also present to strengthen confidence, manage skills, and prepare new individuals for their career responsibilities. This leadership role can be in the form of an apprenticeship. An apprenticeship in beekeeping would be a hands-on experience where individuals gain beekeeping skills under expert guidance. When a new beekeeper joins the cooperative, they can be paired with an experienced beekeeper. They'll gain hands-on learning experience and have the freedom to ask questions, creating a supportive environment that encourages growth, curiosity, and skill development. An apprenticeship timeline recruitment solution has been developed to allow experience and shares within the cooperative to increase over time. An example recruitment solution could be over the course of four years. The membership fee would be \$250 per year and shares in the cooperative would increase by 25%. As time progresses, apprentice beekeeping skills will also increase. Once year four has been reached, full membership status will be granted. The apprentice would have contributed \$1,000, which grants them complete input and shared ownership within the cooperative. In return, the apprentice would have established full beekeeping skills, allowing them to independently and confidently manage their own hives. The apprenticeship opportunity allows new members to slowly assimilate into the beekeeping culture, allowing supportive and hands on training. Overtime, apprentices can work towards paying the membership fee, purchasing their shares into the cooperative, and gaining the proper beekeeping experience.

Education and awareness challenges have created barriers for new members joining the cooperative. There is limited understanding of beekeeping, honey production, and education on the benefits of honey and the industry. This reduces interest and engagement from the community. Insufficient bee suits and equipment are also present, limiting access to necessary tools for aspiring beekeepers. Making it difficult to provide hands-on training opportunities for potential new members. Lack of resources and beekeeping knowledge discourages interested participants. Marketing and outreach gaps are also present, resulting in inadequate promotion to the cooperatives products and services, and lack of branding and visibility to attract new members. Addressing these gaps through educational programs and marketing awareness is essential for growth. Outreach opportunities can be put into place to resolve challenges faced by the cooperative. For primary students, a fun and educational class can be created to spark early interest and awareness. The class could present information about bees and honey, incorporating a small craft or activity to relate learning to a hands-on experience. A similar class can be available for young adults, providing education and knowledge for individuals interested in beekeeping. The class can involve beekeeping science, environmental impacts, or general knowledge on the process of beekeeping. A possible membership deal can be provided for interested members to join the cooperative, encouraging class participation. Additionally, May 20th is World Bee Day in Belize, a great motive to promote beekeeping and celebrate bees. A communal event can take place with promotion and awareness opportunities to celebrate the importance of bees and the cooperatives work. This outreach is aimed at educating the public in beekeeping, establishing stronger connections within the community, and helping attract new members.

Another way to connect with the community and attract new members is by establishing a strong social media presence. Social media is an easy way to connect with interested members. It's a low-cost platform providing engagement to a wide audience, including individuals across the globe. By posting intriguing and relatable content through videos, photos, and informative posts, individuals have access to this information. Beekeeping has become extremely popular, especially on TikTok. The social media app has a trend where beekeepers post videos under the category #beetok. These videos have created a tightly knit community with passionate followers. A video explaining what a full frame of honey looks like

has 2.8 million views, and 630,000 likes. This can be adapted into the beekeeping cooperative, capitalizing on public curiosity and viral potential. Implementing someone to oversee the beekeeper's social media would be a great solution. A youth marketing apprenticeship can take charge the cooperatives digital marketing. The job would prioritize social media platforms such as TikTok, Instagram, or Facebook. Other tasks can include updating the cooperatives website, creating virtual business cards, and brainstorming ideas on marketing and outreach strategies. These posts can potentially recruit more members through an informative manner. The position would also be appealing for the youth member. The apprenticeship would be unpaid, but could receive a \$50 credit through the cooperative, or be supplied with discounted beekeeping equipment or hives. This would be an incredible marketing and online experience for the student, with additional discounted equipment. When implementing recruitment and awareness strategies, positive impacts will reflect onto the cooperative and the beekeeping members. As membership increases, so will the number of shares and available resources. An increase in honey production and sales will increase the cooperatives revenue, visibility, and serve long term sustainability. The financial security and accumulated interest will be invested back into the beekeepers, continuing to grow their cooperation. These changes can strengthen the current beekeeping cooperatives presence within the community, inspiring citizens to become involved within local Belize beekeeping practices.

## Case 2: The Concepción Valley Onion Farmers



## Introduction

Our project centered around working with the Concepción Vegetable Farmers (CVF), a vegetable cooperative located in Corozal, Belize. CVF produces a range of vegetables, most notably onions, which was the focus of our project. Our central task was to evaluate a previous business plan from CVF and analyze the extent to which goals were executed, as well as provide recommendations for improvements.

Looking at onions specifically, we were met with several challenges. There is a strong presence of contraband (illegal importation of onions) making it difficult for local producers to sell their products.

Nearby such as Mexico, Guatemala, and Honduras have a lower cost of production for onions, making it difficult for local farmers such as CVF to compete with imports. On top of that, the Belize Marketing Development Corporation (BMDC) provides “legal contraband” in the form of imports during the local season. These additional sources of competition are difficult to beat. Factors such as lower foreign production costs, local and imported/contraband onions being mixed together in bags for concealment, and a lacking relationship between CVF and BMDC cause difficulties.

Additionally, there are many distribution issues within Belize. Many onions are grown in the north, making transporting the produce to the south difficult. Gas prices, car purchasing and maintenance, and drive times make the transport of onions a large burden on the farmers. It is difficult to spend the time and money to bring onions to other cities and markets within Belize. There is a surplus of onions locally to the farm since many people in that area grow them, so travel is essential to sales. Finding demand and low-cost distribution is a large challenge.

Despite these difficulties, the AGBL team was able to provide a thoughtful analysis of CVF and suggest recommendations for improvement, which we believe have the potential to make a positive difference.

## Overview

Our team was tasked with the two primary goals. First, Joe Lisbon with Rural Resilient Belize requested that we review the Concepción Village Farmers Onion Cooperative business plan developed in 2020. We studied their quantitative data, goals, and proposed solutions to various problems. Furthermore, we conducted our own research in March 2025 to re-evaluate numbers and give progress updates on the plan. Secondly, as outlined by the Applied Global Business Learning course, we cultivated our own business suggestions for the co-operative based on our field experiences and individual educations.

Our primary source of information for the current state of the cooperative was through our personal interview with the farmers. On Saturday, March 8<sup>th</sup>, 2025, we traveled to the Concepción Village Farmers and met with several farmers. After introductions, they immediately delved into their struggle with competing against cheap imported onions from Guatemala and Mexico. They explained how the Belize Marketing and Developing Corp were only supposed to import produce during the off season to supplement local farmers’ production, but that they often continue year-wide due to the profitability of the market. We then asked extensive follow-up questions along with our previously prepared inquiries. Afterwards, we explored the farm, viewing their carrots, onions, melons, irrigation system, and learning about the planting process. Overall, these conversations were incredibly fruitful, their wisdom aiding us greatly in our support.

We ran into several roadblocks throughout this project, mainly the complications due to the onion market structure, government corruption, and the fixed currency exchange rate. Onions are the definition of perfect competition, meaning many small firms sell identical products, there are no barriers to entering the market, and individual producers cannot affect the selling price of the good. Therefore, advertising is futile since differentiating products is impossible, and there are many substitute options to buy should one firm raise their price based on slightly different qualities. Any marketing efforts should instead be focused on increasing involvement in the cooperative. In addition, producers will choose to enter the market if

they notice an opportunity for profit there since it is simple to do so. In the long run, all firms tend to break even with no profit or loss. The corruption of BMDC entering the onion market increases supply and therefore competition, driving down the possible market price for onions.

In addition, the fixed exchange rate that keeps the Belizean dollar as one half of the American dollar results in an unnaturally high Belizean cost of production in comparison to Mexico and Guatemala. Due to this fixed dollar, the actual value cannot fluctuate in response to the economy of Belize and surrounding countries. As a result, the floating exchange rate in Guatemala and Mexico allows them to have a much lower cost of production simply based on the valuations of their currencies. Therefore, there will always be a profit and incentive for imports, whether legal or illegal. Growing the cooperative and uniting it with others will allow more power for negotiations and protests regarding BMDC, but the likelihood of this issue continuing is high. Originally, we thought that our main goal for this project would be to assist in lowering the cost of production to lead to higher profits and make competition with imports easier. Unfortunately, due to the exchange rates and corruption, that route was determined to be impractical. The CVF cost of production is already impressively low with little to no room for improvement. Therefore, it could be beneficial to be creative with solutions and even tap into some new markets.

After the interview, we analyzed the current state of the 2020 Business Plan. One proposed idea for the co-operative was to utilize a marketing consultant to brand mesh bags of onions with the farmers' logo. This strategy was not practical to bring into fruition since the bags are reused after sales and contraband onions get mixed into bags of local onions to avoid detection. This would result in other farmers' onions and contraband to be sold in the Concepción Village Farmers labeled bags, benefiting from their local logo while bearing none of the cost. Furthermore, due to supply chain restrictions, the price of labels is incredibly high at almost BZ\$1 each, which doubles the cost of production. Finally, as previously mentioned, perfect competition makes advertising unnecessary since consumers usually pick the cheapest option, not swayed by organic or local labels. Another theme from the business plan was increased education to farmers to reduce loss and promote efficient growing practices. While this education has been theoretically available, farmers reported difficulty in scheduling education, often needing to plan quite in advance. In addition, many educators arrived with more questions than answers, leaning on the farmers for agricultural wisdom. Furthermore, a soil analysis was planned to provide insight into seed types, planting, fertilizer, and pesticides. Since the farmers do not have the materials to constantly sample and test soil, often using trial and error, RRB recently completed this research. This provided information about fertilizer and pesticides, allowing them to concentrate their spraying to maximize efficiency and reduce excess and costly usage. Farmers did report lacking information about which seeds are best and where to purchase them. Specifically, they were interested in a type of seed that could be planted later in the summer season and withstand the warmer climate. Finally, a storage facility for food processing, onion storage, and a sales office were promised. The land for this is purchased and construction was supposed to have begun in early April. Accountability for this process should be maintained. Some clear, completed improvements since 2020 have been established including better irrigation and access to community funds. Farmers reported being content with their irrigation, using well water and a drip irrigation system that we observed at the farm. Furthermore, they reported having better access to loans once established within the cooperative. In the final presentation meeting, we discovered RRB's plan to assign two interns to CVF and other cooperatives. These individuals could assist in marketing to grow the cooperative, record-keeping, finding demand, and other creative ideas for advancements. We have proposed several of our own ideas that this intern or others within the co-operative could explore.

## Recommendations

Upon analyzing the current state of the CVF cooperative, it is essential to recognize the above-mentioned issue of them competing for a product categorized in perfect competition. This environment presents unique challenges to profitability and long-term growth. In response, our recommendations focus on building strategic partnerships, growth in numbers, enhancing marketing efforts, improving record-keeping practices, and exploring opportunities to expand into additional markets. These strategies aim to strengthen the cooperative's operational capacity and support its long-term sustainability and development.

### Strategic Partnerships

We recommend that CVF continue to strengthen its relationship with the Rural Resilience Belize (RRB) project and encourage RRB to take on a more active role in advocating for the cooperative. RRB's established and positive working relationship with the Belize Marketing and Development Corporation (BMDC), a key player in agricultural market development, positions them well to represent CVF's interests. Their advocacy can help ensure that CVF is fairly recognized and supported by influential organizations. By fostering closer collaboration with BMDC, CVF could gain access to more competitive and high-demand markets, enhancing its visibility and market reach. Additionally, with RRB serving as a strategic advocate, CVF may experience smoother integration into formal market systems, along with increased support in critical areas such as production, logistics, and pricing. BMDC has demonstrated significant influence in the onion market and has the potential to elevate CVF's visibility and competitiveness, particularly against foreign producers from Mexico and Guatemala. We recommend that BMDC partner with CVF to assist with the distribution and price-setting of onions, ensuring that CVF receives a fair and consistent purchasing price. This would allow the cooperative to stabilize income and reduce reliance on unstable market-driven pricing.

Additionally, by setting a fair purchasing price, CVF can reduce the labor and costs associated with marketing, transportation, packaging, and sales. This would provide members with more time and resources to focus on production quality and operational efficiency. One of the key challenges CVF faces is limited control over agricultural inputs, especially seed procurement. Currently, farmers are subject to the offerings of importers, leading to a trial-and-error approach in seed selection. We recommend that BMDC assist in sourcing seeds that are well-suited to the land and climate conditions of Concepción. Access to the right seeds would significantly improve yields and reduce uncertainty in the production process. In addition to technical support, BMDC could help offset the cost of seeds and other inputs through structured agreements, modeled after successful frameworks used by other cooperatives, such as the honey cooperative. This support could include the development of a credit policy designed to assist both current and prospective CVF members in managing production and material expenses. A no-interest credit arrangement similar to what is currently offered to the honey cooperative. This would allow CVF members to purchase raw materials during low-price periods and provide financial flexibility during seasonal peaks. Over time, such a policy could enable investment in land expansion, equipment upgrades, and improved access to fertilizers, all of which are crucial for the cooperative's long-term growth and resilience.

By establishing a stronger relationship with both BMDC and RRB, CVF would be better positioned to lobby for changes to the current monetary and regulatory systems governing agriculture. A key focus of this advocacy should be the development of clear guidelines for onion importation, specifically determining when imports are allowed versus when the domestic market should be prioritized. This would help safeguard the interests of local producers during their harvest seasons and reduce the risk of market saturation from foreign products. Setting consistent and fair price points for onion sales is critical. During our discussions with the CVF cooperative, unpredictable and unfavorable pricing was repeatedly highlighted as a major pain point. Establishing a structured pricing framework, with the support of BMDC, would help stabilize income for farmers, allowing them to plan and invest with greater confidence.

### **Growth in numbers and working with others**

Another key recommendation is to promote the growth and expansion of the CVF cooperative. Increasing membership would strengthen the co-op's bargaining power when negotiating market prices and engaging with entities such as BMDC. A larger membership base would also help grow the pool of funds available for CVF activities and facilitate the development of shared resources. These resources could include further developing the marketing/storage facility or purchasing a shared truck for transporting goods to market, both of which would significantly ease operational burdens on individual farmers.

Expanding the cooperative would also foster a stronger sense of community among members and contribute to long-term business success. One practical strategy for attracting new members is to enhance CVF's presence on social media. Facebook has proven to be a widely used and responsive platform among individuals in Belize, making it a valuable tool for outreach and recruitment. Utilizing marketing efforts to grow the organization as opposed to the often-futile product advertisements of perfect competition could be a beneficial task for an intern. Below is an example of a flyer that could be used in a Facebook post to encourage individuals to join the cooperative:

## Join the Concepcion Vegetable Farmers!

### *What is CVF?*

- A membership based co-op of vegetable farmers supporting individual and collective success

### *Why join our co-op?*

- Increased income compared to non co-op members
- Helpful resources (ex: joint selling facility)
- Collective marketing
- Positive community and morale among members



CVF could explore forming partnerships with other cooperatives. We learned through the interview that this approach has been effective in the past with a meeting that drew two members from each co-operative. Many of these individuals shared that they would have supported CVF in their protest and reporting on BMDC, showing this unity can amplify collective influence. According to a 2022 study conducted by the National Cooperative Business Association CLUSA International (NCBA CLUSA), individuals involved in cooperatives earn significantly higher incomes than those who are not. The study reported income increases of 63% in Honduras, 47% in El Salvador, and 37% in Guatemala for cooperative members. These findings also highlight benefits for young members, including higher earnings and improved morale, further underscoring the value of expanding CVF's reach and membership base. This information can be used to draw in new members, especially young ones.

### **Develop a marketing strategy**

Marketing plays a vital role in increasing awareness and visibility of the CVF cooperative. To support its growth and expansion, we recommend that CVF develop and implement a comprehensive, yet realistic, marketing strategy. A well-structured communications plan can help promote CVF's products more effectively, which in turn could lead to increased profitability and stronger community engagement. One key element of this strategy would be the creation of a consistent selling schedule that clearly informs

the public where and when CVF products will be available. In addition, the marketing approach should emphasize the importance of supporting local farmers, an angle that resonates strongly with communities and can help generate loyalty and trust. This type of organized and value-driven outreach can help the cooperative build a reliable customer base in village markets and larger outlets such as regional supermarkets.

We also recommend appointing a dedicated CVF representative to sell products at larger markets, such as those in Belize City. This would involve collecting goods at the cooperative's marketing/storage facility and transporting them to more populated markets, with profits distributed equitably among co-op members. Once this system is established, it could open doors to partnerships with local supermarkets, enabling CVF to become a consistent and reliable supplier.

To promote the selling schedule and increase visibility, CVF can use social media platforms, particularly Facebook, to post regular updates about when and where sales will occur, encouraging community support. Additionally, WhatsApp offers valuable tools such as business group chats that can be used to notify regular customers or community groups. These communication channels are already widely used in Belize and can be leveraged to build a strong local customer base.

### **Record keeping**

In addition to maintaining a consistent selling schedule, effective record keeping should be a key component of CVF's operations. Since this work serves as the primary source of income for many co-op members, it is essential that their contributions and outcomes are properly documented, especially in numerical terms. Record keeping is a powerful tool for generating actionable data. Farmers should be encouraged to log input prices for raw materials and labor, as well as track onion prices and their fluctuations throughout the year. This data will allow them to better understand customer demand, calculate average input costs, and make informed decisions at the beginning of each season. To support this effort, we recommend that RRB provide training in record keeping, similar to what has been implemented successfully in the honey cooperative. This could include hands-on instruction in user-friendly tools such as Microsoft Excel or QuickBooks. With proper training, farmers can use these tools not only to track income and expenses but also to create delivery schedules, monitor sales over time, and identify the most cost-effective periods to purchase supplies and the most profitable times to sell. In the long term, maintaining these records will provide valuable reference points for planning future seasons and improving overall efficiency. Below are two sample graphs that demonstrate how cost and sales can be recorded:



Product	Details	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Total
Product 1:	Production volume													
	Variable Cost per item (\$)													
	<b>Total Variable Cost (\$) (1)</b>													
Product 2:	Production volume													
	Variable Cost per item (\$)													
	<b>Total Variable Cost (\$) (2)</b>													
Product 3:	Production volume													
	Variable Cost per item (\$)													
	<b>Total Variable Cost (\$) (3)</b>													
Product 4:	Production volume													
	Variable Cost per item (\$)													
	<b>Total Variable Cost (\$) (4)</b>													
<b>Total Variable Cost of the business (\$) (5) = (1) + (2) + (3) + (4)</b>														
<b>Total Fixed Cost (\$) (6)</b>														
<b>Total cost (\$) (7) = (5) + (6)</b>														

Details	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Total sales value (1) (see section 7.1)													
Total Variable Cost (2) (see section 7.2)													
Gross Profit (3) = (1) – (2)													
Total Fixed Cost (4)													
Net Profit (5) = (3) – (4)													

## Expanding into other markets

### Onion Powder

Given the competitive nature of the market in which CVF operates, it is both strategic and practical to explore diversification opportunities that bring additional value to its existing products. Agro-processing, specifically the production of onion powder, presents a feasible and promising avenue. This



initiative would allow CVF to tap into new markets, including the tourist sector, while leveraging its current onion production.

The process of creating onion powder would require relatively modest investments in equipment, including a peeling system, an oven or dehydrator, and a grinder. With the development of the new storage and marketing facility, it would be possible to house the entire production process on-site, increasing efficiency and reducing logistical burdens. During our visit, we found that onion powder is sold in Belizean supermarkets, yet it is imported from other countries. This presents a clear opportunity for CVF to enter a market that already exists, potentially replacing imported products with locally produced alternatives. Moreover, there may be opportunities to collaborate with established Belizean seasoning brands, such as the renowned Marie Sharp's, to distribute or co-brand the product. However, successful implementation will depend on several critical factors. These include potential partnerships with BMDC to assist with packaging, branding, and marketing, given CVF's current resource limitations. Environmental conditions, such as Belize's high humidity, may pose challenges in the dehydration process, but this can be mitigated using central air or controlled storage environments within the facility.

Lastly, standardizing the production process and ensuring consistent quality will require training and technical support for co-op members. We recommend that RRB play a key role in facilitating this training, similar to its support in other cooperative development efforts.

#### Lemon Grass Oil

Another promising avenue for CVF to consider is diversifying its agricultural portfolio by transitioning to high-value crops such as lemongrass for essential oil production. According to the Pro-Organic Belize Tropical Garden Grow Guide, lemongrass, also known as fever grass, grows exceptionally well in Belize and has a wide range of commercial applications. It is used in medicinal and culinary products, as well as in the production of perfumes, soaps, and cosmetics. In terms of yield, lemongrass presents a compelling case: one acre can produce up to 1,110 ounces of essential oil. This potential has been further supported by insights from Dr. Mathew, owner of the Belize Spice Farm, who has presented on the commercial viability of lemongrass oil production. Lemongrass is also agriculturally advantageous, it is low maintenance, does not require fertilizers or pesticides, and naturally repels insects with its strong aroma. Additionally, its dense growth suppresses weeds, further reducing labor and input costs. However, entering the lemongrass oil market would represent a significant shift for CVF, requiring the establishment of new infrastructure and partnerships. Specifically, the cooperative would need to connect with a distillery for oil extraction and undergo proper training in cultivation and harvesting practices. We recommend that RRB support this initiative by facilitating connections with experts like Dr. Mathew and offering training sessions, ensuring that the cooperative is well-prepared to enter and succeed in this new market.

#### Hemp Oil

Similar to lemongrass oil, hemp presents a promising and rapidly expanding market that CVF may consider as part of its long-term diversification strategy. According to the Belize AG Spring 2022 Report, hemp cultivation is gaining traction due to its versatility and high demand across various industries. Hemp is used not only in the culinary and nutritional supplement markets but also in the production of lotions, cosmetics, fabrics, and soaps. One of the primary advantages of growing hemp is its resilience and low input requirements. The crop does not require herbicides or pesticides; these are, in fact, prohibited, due to hemp's natural ability to absorb and reflect the properties of the soil. Using non-organic pesticides

could contaminate the product, making organic and sustainable practices essential. Additionally, hemp is known to thrive even in dry conditions, making it a suitable crop for areas affected by drought, a challenge that has previously impacted CVF's yields. However, entering the hemp industry does come with regulatory and logistical considerations. The cooperative would be required to obtain a cultivation license, and entering this emerging market carries certain risks due to its relative newness and evolving regulations. To navigate these challenges, we recommend that RRB take an active role in supporting CVF by facilitating training on hemp cultivation, connecting the cooperative with legal and commercial partners, and guiding the transition process to ensure it is well-informed and strategic.

#### Cassava Vodka Distillery

Another potential crop worth exploring is cassava, particularly in light of recent developments within Belize's agricultural innovation sector. According to the 2024 Belize AG Report, an entirely off-grid vodka distillery has been established by Ben Bloodworth and Dawna Capaldi. Their goal is to create a fully sustainable, plant-based vodka operation using cassava and to work in partnership with local farmers, following a model similar to Marie Sharp's approach to sourcing habaneros. Cassava offers several agricultural advantages. Notably, it is highly resistant to common plant pests, which simplifies cultivation and reduces the need for costly inputs. However, it's important to note that cassava has a longer growth cycle, requiring approximately 5 to 12 months to reach full maturity. This extended timeline may impact cash flow and planning for new producers. As with any new agricultural venture, there are inherent risks involved in entering a new and unfamiliar market. Therefore, it would be critical for CVF to carefully assess these factors before transitioning. We recommend that RRB play a supportive role by providing training on cassava cultivation and processing, and by helping facilitate a connection between CVF and the distillery founders. This partnership could potentially open a new and sustainable revenue stream for the cooperative while also contributing to innovation in Belize's agricultural economy.

#### Zoo Connection

During our field visits to CVF members' farms and the Belize Zoo, our team identified a potential partnership that could mutually benefit both parties. At several farm sites, we observed a significant number of vegetables, specifically carrots, left in the fields to rot due to not meeting market standards. There is nothing wrong with the quality of the carrots; they are simply the wrong size or shape for consumers' preferences. These "non-market-worthy" vegetables are typically discarded, representing both a loss of potential income and a waste of resources. Conversely, during our visit to the Belize Zoo, we noted that many of the animals' diets consist primarily of vegetables, including many carrots. The zookeeper mentioned that they buy their produce weekly to bi-weekly. This presents an opportunity for CVF to work in collaboration with the zoo by supplying surplus of non-market vegetables as animal feed. This arrangement would not only reduce food waste and provide an environmentally sustainable use for excess produce but could also generate additional income for CVF farmers. We recommend that CVF explore the feasibility of initiating a supply agreement with the Belize Zoo. This could be facilitated through outreach by RRB or another supporting organization to help formalize the partnership and develop a consistent delivery system. Such a collaboration would support local sustainability efforts while offering a creative solution to product waste and loss of revenue.

## Conclusions

Once we met with the cooperative it was clear that the relationship they had with BMDC was a major factor. Without the contract agreement, the cooperative would be in a completely different state. BMDC allows the cooperative to focus on solely producing the honey/obtaining it from the bees and transporting it. The members of the cooperative are extremely content with this setup. They do not see the contract being pulled even with their renewal process being completed every year.

BMDC takes care of the bottling, marketing, and consumer selling aspects of the process. The honey is sold affectively as Belize Jewels Honey. Even if the market for honey is poor, the contractual price of honey between the beekeepers and BMDC does not change unless the contract is changed. The cooperative takes action to ensure that the price agrees with current market values every year.

BMDC also benefits the cooperative with the equipment purchasing policy. The cooperative has no interest in expanding into marketing and each beekeeper wants to focus on either their own honey production or also the expansion of the cooperative. Therefore, our recommendations lie within the topic of growing the apiculture industry and the Orange Walk County Honey Cooperative. To grow the cooperative, we recommend that they increase their social media presence, create opportunities for younger generations to explore the world of apiculture, and add an internship opportunity along with a phase process for more members to join the cooperative.

Our team's partnership with the Concepción Vegetable Farmers' cooperative and Rural Resilience Belize has offered invaluable insight into the economic realities and challenges facing small-scale agricultural producers in Belize. Through field visits, in-depth interviews, and analysis of CVF's original business plan, our team gained a deeper understanding of the obstacles that continue to impact the profitability of local onion production.

Despite these significant challenges, it is evident that CVF is filled with resilient, resourceful, and forward-thinking individuals who are committed to improving their livelihoods and contributing to their community. Our findings suggest that sustainable progress will require continued support from RRB, a stronger and more strategic relationship with BMDC, and creative solutions that go beyond traditional market strategies.

By expanding cooperative membership, improving record-keeping practices, establishing communication with consumers, and exploring new market opportunities, CVF can increase its economic viability. The foundation for growth is already present in the form of improved irrigation systems, better access to loans, and farmer-driven innovation. With continued collaboration, advocacy, and education, we are confident that CVF has the potential to thrive.

This experience has reinforced the importance of global partnerships in advancing sustainable development, and it was an honor to have played a small part in supporting the efforts of these hardworking farmers. We hope that the recommendations outlined in this report will serve as a useful resource as CVF continues to grow and navigate an increasingly complex agricultural market and environmental climate.

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