



Proceeding Paper

Export-Readiness Assessment for Ramón Seeds in the Maya Biosphere Reserve Communities (MBR) in Péten, Guatemala: Optimized Export Capacity Enabling Resilient Livelihoods †

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Abstract: The success of the existing Mayan Biosphere Reserve (MBR) model depends in large part on the resilience and sustainability of forest livelihoods within MBR communities. Concession livelihood strategies include and often depend on the trade of non-timber forest products, within and outside the region. Of particular interest is Ramón seed, which is used as a food crop and an ingredient in food and beverages in national and international markets. This research focuses on strengthening community forest enterprises and on supporting and expanding market opportunities that contribute to local livelihoods by presenting an export-readiness assessment for the Ramón seeds' export to the US market. We explore the resiliency of community forest enterprises in response to economic and environmental vulnerability, such as the variability of wild-sourced Ramón seeds. Variability in supply, in the ability to harvest, and in post-harvest processing have substantial effects on market success. Considering this, understanding the resilience of these Agri-forestry enterprises will support community desires to sustain and improve their livelihoods.

Keywords: export-readiness; Mayan Biosphere Reserve; Ramón seeds; resilient livelihoods



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1. Introduction

The Ramón nut is a local product that has been used in Peten since the Mayan civilization. The extraction, processing, and commercialization of the Ramón nut locally, as well as selling it to a third-party (intermediary partner) to sell the Ramón seeds to international markets is one of the ways that the Maya Biosphere Reserve communities manage to gain better livelihoods.

Our main goal with this paper is to increase the value-added exports from the local communities in Peten, Guatemala to global markets. To accomplish this goal, we examined different processes, frameworks, and standards of non-timber forest products (NTFPs), focusing on Ramón, to assess these communities' ability to export to the global market, specifically the U.S. market. This work serves as a pilot study for assisting the Rainforest Alliance in conducting a full-scale export development framework for the whole concessionaires in Peten, which can be implemented through future graduate students' work. In this report, we attempt to tackle the following questions: What do we mean when we say that the community forest enterprise is "export-ready" as a responsible business? How can communities identify the export gaps of their production of Ramón to be ready to penetrate the U.S. market? What conclusions might we draw from the various methodologies and approaches undertaken to assess the export-readiness of Ramón?

This report includes the methodology that we used to undertake the export-readiness assessment, as well as the techniques used to gather the data used in this research. Following the Methods section, we discuss the findings and, finally, we share our preliminary findings.

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2. Methods

To identify and evaluate the export-readiness and capabilities of involved local communities and community partners to export Ramón into the US market, we decided to use a mixed-methods approach to collect and analyze the data. This is due to the complex nature of the subject, considering the nature of the concession's framework, through which the economic and social impacts on these communities residing in the Maya Biosphere are generated out of their harvesting and commercial activities.

Throughout the research process, the selected methods were non-linearly modified to adapt to the realities of the local communities and the limitations of time we faced during the summer field work. The consultants worked on three phases: the first phase included developing the export-readiness questionnaire forms, the methods for application, and the assessment and evaluation techniques. The second phase was the implementation of the designated methodology. Lastly, the third phase involved carrying out the export-readiness evaluation and analysis.

As the export-readiness assessment was new to this project and the project client 'Rainforest Alliance', we conducted a pilot testing questionnaire interview with one of the stakeholders, which helped the consultants establish "whether or not the method of data collection, as well as the questions being asked, are eliciting target responses" [1]. Hence, several questionnaire forms were developed to fit the role related to each stakeholder involved in the export value chain. The methods that have been and will be used to ensure that the research results will be used includes involving Rainforest Alliance and other stakeholders in the design and hopeful implementation of the report, ensuring that everyone has a "vested interest", maintaining the project team's credibility, and maintaining open and honest communication [2]. Throughout this process, we had various meetings with Rainforest Alliance and the community partners. They also provided important feedback consistently throughout the analysis and assessment process. Methods of communication with the client included emails, working Google documents allowing for open feedback, memos, and meetings [2].

In this research, we are targeting a diverse set of key stakeholders involved in the Ramón export value chain, from the Ramón community harvesters to Ramón seed aggregators, the Ramón exporter, and the U.S. Ramón importer. The aim of this wide segmentation in our sampling plan is to capture a holistic understanding and evaluation of the current export value chain, based on the different experiences of these stakeholders. The evaluation process depended on the data obtained from semi-structured questionnaires and secondary data sources, such as financial and business documents received from the participants and field observations, to generate confirmatory results.

With regards to the use of qualitative techniques in this research to collect data and to understand the capabilities and readiness of the value chain of the Ramón seed, we developed our questionnaires by consolidating some of the questions used in export-readiness assessment implemented by two international organizations: the United States Agency for International Development (USAID) and the Centre for the Promotion of Imports from developing countries (CBI). These organizations are devoted to promoting the transition towards inclusive and sustainable economies globally through the expansion of fair and universal trade. This reconciliation of ideas from the successful practices of ERA was based on the selection of the most positive and relevant aspects of each of these methodologies that matched the socio-economic characteristics and realities of community forest enterprises in Mesoamerica.

To answer the questionnaires, we used a non-random sampling method to find preselected participants who are key informants of the stakeholders related to the supply chain of the Ramón seed. Due to the technical nature of the questionnaire's questions, our inclusion criteria to choose the respondents of the questionnaire includes that the interviewed person had to have a role in the export value chain of the Ramón seed. We involved some demographic criteria related to gender and occupation in our sampling structure. In that context, our target sample size was 20 participants, including 7 female and 7 male Ramón Environ. Sci. Proc. 2022, 15, 59 3 of 10

harvesters, the President and Vice President of the Ramón committee, 1 representative of the concessionary association, 1 representative of ACOFOP (as a community partner), the co-founder of Cafinter (one of the main Ramón exporters), and the founder of Teeccino (one of the main importers of Ramón in the U.S.). However, due to time limitations and COVID-19 restrictions, we were able to apply for 13 interviews with 3 different stakeholders in two different concessions (AMUL and Uaxactum).

To analyze the social and economic impacts of the export activity of Ramón, we conducted in-depth semi-structured interviews with the interviewees to analyze their perspective on the export of Ramón and the difficulties they face all over the Ramón export chain. During the interview, the consultants spent considerable time probing participants' responses, encouraging them to provide detail and clarification. These data, along with field observations and submitted commercial documents from community partners, were critically analyzed and then evaluated to provide an overall assessment of the communities' capacity and capability to export Ramón to the U.S. market; this is along with secondary data from desk research, as well as previous university alumni works, which were used to explore the findings.

3. Results

During the interview process, we had the opportunity to understand how the stakeholder value chain works for Ramón in the communities of the Mayan Biosphere. It was possible to both access the existence of different stakeholders and to understand the importance of each of them in the Ramón chain, as well as their importance to one another.

Farmers or Ramón collectors are people who live in the communities and have the Ramón activity as part of their livelihood. Part of the household incomes of said farmers come from this activity. In the case of Ramón seeds, the farmers are at the base of the chain. They are the most affected by any type of change in the chain, be it price changes, demand changes, or even external factors related to nature. Thus, they are essential for the supply chain, although they are the last ones to feel the improvement of the business factors and the first ones to be affected with the improvement of socioeconomic attributes [3].

To understand how and why the farmers live in those areas, we need to explain the concept of concessions. The concessions, or forest communities, of Petén protect 70% of the Mayan biosphere reserve, which has 2.1 million hectares of forest full of biodiversity and resources (ACOFOP, 2020) [4]. These concessions are government authorizations given to pre-existing communities that resided within the Mayan Biosphere reserve. It is important to state that each community has a different background and formation process. The existence of community companies in the Maya Biosphere Reserve in Petén, Guatemala generates environmental benefits for society and socioeconomic benefits for the communities and, in return, the government grants the rights of use and management of those resources [5].

Each community/concession is legally represented and constituted by an association, which is the legal actor representing the community. They can be called concessions, associations, or community companies, and are legally responsible for the rights and duties constituted by the concessions. The community companies have their own statutes and hold regular elections to elect their administrative body. Studies show that there is evidence of positive environmental impacts and advances in the socioeconomic sphere, together with the documented evidence of positive environmental impacts (deforestation rates close to zero in active community concessions), and a positive relationship between advances in the socioeconomic sphere (income, investment, savings, capitalization of community enterprises, asset formation of associated families and organizations) [5].

As a way to increase their bargaining power with potential customers, these associations understood that together they had more strength. In this way, the joining of associations and partner organizations created the Ramón committee. The committee is a place to debate and define opportunities, challenges, and prices. As mentioned, the committee is formed by the organizations and institutions that help and support the farmers

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and the associations. The committee is an institutional place, allowing them to obtain more voice and power in front of clients and bureaucracies and, thereby, become stronger.

To organize their forest services, they created FORESCOM: a community forest services company that emerged because of the expansion of 11 community forest concessions in Petén. The company sells wood and non-timber forest products under strict world standards, which guarantee the sustainability of natural resources managed by community forest concessions in the Mayan Biosphere Reserve, and at the same time generate employment and social development for Guatemala. In the Ramón supply chain, the communities collect the Ramón seeds and take them to FORESCOM to be dried in an oven that belongs to FORESCOM. Once the work is finished at FORESCOM, the communities send the Ramón seeds to the distribution center. At this stage, FORESCOM is solely a service provider, and is related to marketing and commercial support.

Meanwhile, ACOFOP is an organization also established by the community associations to protect the biodiversity and the architectural and cultural heritage of the Mayan Biosphere Reserve. This objective is accomplished through the application of a community forestry model that, in addition to conserving, also generates economic and social benefits for those living in and caring for the woods, taking advantage of the resources of the forest, and for the management of tourist services. ACOFOP is the political and social arm of the communities and represents them in the Ramón committee meetings. ACOFOP helps the communities obtain funding that supports them in terms of training for the communities, but they are not involved in the marketing (the commercial) piece.

When the Ramón seeds are dried, the community enterprises sell them to Cafinter, the main distribution partner for Ramón seeds in Guatemala. The relationship of associations with CAFINTER is old and reliable. However, because of the way the system is established, there is not much room for new orders, making this relationship dangerous in the long term because it is just a single demand. For the commerce and distribution of the seeds in the United States, Cafinter sells them to their main buyer and distributor abroad: Teechino. Both distributors and intermediary buyers have a risky relationship in this system, as they are very dependent on each other and do not have much room for flexibility in terms of demands and orders.

3.1. Export Value Chain

The export value chain model that we used was inspired by the market value chain approach implemented in the USAID report for Kenyan specialty Coffee in Bangladesh [6]. There are many important interactions assumptions that make up the Ramón supply chain and that contribute to the functioning of the whole operation. The enabling environment that we refer to in Figure 1 involves the existence of socioeconomic attributes and business factors that enable this whole operation to exist. It is important to mention that, since the beginning of the operation, the Ramón chain has as its ultimate objective the conservation of the environment and the promotion of better livelihoods for the population that lives in the concessions of the Mayan Biosphere. The social factors are equivalent to the existing social mobilization around the Ramón-associated economic activity, the improvement of the quality of life of the community, and the constant preservation of the environment through the execution of management plans and audits to maintain the concessions.

A common topic brought up in the interviews was that, because of the existence of the Ramón activity, the community was able to improve the quality of life of its citizens, particularly for both the people who actively participate in the harvest and sale and for people who are not directly involved but who are also benefited, such as small business owners and small service providers. The business factors are related to the Ramón market's trend and demand for the product. A point recurrently mentioned in the interviews is that, now, it is only possible to start harvesting activities after a purchase order is confirmed. Thus, movement in this context becomes codependent on the market. The export value chain is made up of actors and assumptions that contribute to the harvest and delivery

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of the product, from the creation of the management plan to the inspection of favorable locations for harvesting.

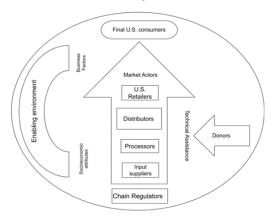


Figure 1. Ramón export value chain conceptual framework.

3.2. Export-Readiness Assessment (ERA) and Resilient Livelihoods

Based on the existing literature about export-readiness, we identified that the three main requirement areas are organizational capacity, operational and technical capacity, and community resilience factors. We found that organizational capacity and the operational and technical capacity assessments alone are not enough to address the U.S. market needs in a socio-economic context. Organizational capacity along with operational and technical capacity are key to ensure an effective and sustainable export performance of any enterprise. However, community resilience and benefits are essential for business strength and durability. In that manner, we have identified the export requirements for the Ramón product as a specialty food based on desk research and other secondary resources.

We assessed the requirements with the current situation to highlight the export gaps that need to be fulfilled by the Ramón committee, with the assistance of the Rainforest Alliance and FORESCOM as well as intermediaries involved in the export value chain. Figure 2 illustrates the export requirements identified as organizational requirements and product requirements.



Figure 2. Export-readiness assessment—organizational and technical and operational assessment.

3.2.1. Organizational Capacity Assessment

Prior Experience and Knowledge

The assessment factor here is whether the Ramón exporting intermediaries have prior export experience and knowledge. Unawareness of the U.S. trade and food safety regulatory framework, which is known to be very bureaucratic, could hinder a successful business's

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attempts to enter the export market. Thus, we think that having at least an experienced Ramón exporter to the U.S. may benefit from lower trade costs over time, due to export experience. In addition, this exporter might be the driving force for new exporters to be encouraged to enter the export market of Ramón by observing the experienced exporter's decisions and learning from his market entry strategies.

The Ramón exports take place through indirect exporting via an intermediary private enterprise named Cafinter S.A., who has been involved in that activity for about 15 years. The owner's experience in navigating the global marketplace and bureaucratic trade requirements for other products aside from Ramón plays a key role in facilitating the process of exporting Ramón to the U.S. market. Exporting Ramón through indirect exports removes the burden of being involved in rigorous export-related administrative and logistical operations from the concessionary communities. It also helps them obtain accelerated access to the U.S. market without requiring any expertise or major cash expenditures, which is suitable for the concessionary communities who are not familiar with exporting.

Language and Networking Capability

The language and networking capability is another key factor we have considered in our assessment. Having a staff member with adequate English language skill is essential for conducting business with U.S. importers and their intermediaries. Moreover, networking skills are required for trust-building with U.S. importers. This can be met with adequate knowledge of the business ethics and culture of the international client. It also requires the exporting committee to be fully knowledgeable of its Ramón product market attributes, to build rapport with their prospective U.S. clients while convincing them to import Ramón.

Sustainability Standards

Certifications for non-timber forest products aim to accomplish the 12th goal of the United Nations' SDGs (responsible production and consumption) by providing an accountability tracking process through which consumers understand the environmental and social impacts of their consumption habits [7].

An enterprise can purchase a sustainability-related certification for its forest produce to broadcast its responsible purchasing decisions. Consumers choose to purchase these eco-friendly certified products because they want to contribute to the promotion of a more sustainable world by taking responsible and ethical decisions through their purchases [7]. For some target export countries, such as the U.S., it goes beyond the above-mentioned voluntary schemes. Ramón's producers already have the organic certification because they are subject to obtaining such certification in order to sell their produce in the U.S. legally, which is one of the main consuming markets for organic-certificated products.

The fair-trade certification set by the Fairtrade Labelling Organizations International (FLO) is an important certification standard, as it guarantees a minimum price to producers, being exclusive to smallholder farmers. The US is the largest fair-trade import market, with 85% of its imports coming from Mexico and Central and South America, where a considerable number of consumers are advocates of responsible production and business practices. Thus, having a combined fair-trade and organic certification for Ramón would serve as evidence to conscious U.S. consumers that they are being paid fairly and, hence, they will be encouraged to take part in sustaining their livelihoods by purchasing Ramón.

Quality Control Management Standards

Through field observations and interviews with farmers and the community association's staff, it was possible to identify the procedures related to quality control established throughout the Ramón supply chain. For the interviewees involved in the harvesting process, the quality standards for that part were well known and established, following the criteria that harvesting should only take place in pre-demarcated areas. For the demarcation of the areas, there are Ramón's collection supervisors that determine where the harvesting should take place; the harvesting process involves selecting only whole seeds, without any

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type of cracks or damage; washing the seeds so that no dirt remains; drying the seeds in an airy place, and storing them away from impurities until the day of sale to the associations.

Regarding quality certifications, the Ramón seeds produced in the Mayan Biosphere have two quality certifications: the organic certification and the kosher certification. The organic certification states that all the materials involved in the production of Ramón's seed were of organic origin, while the kosher Certification assures that both the product and its production process adhere to all kosher law requirements.

3.2.2. Technical and Operational Capacity Assessment Supply Capacity and Continuity

The supply capacity of the operation is related to the capacity of the concessions to supply the demand informed by the market. In the current state of the operation, the concessions' ability to supply market demand depends directly on three variables: (1) the harvest period for Ramón trees; (2) the storage capacity; (3) the cash available for working capital.

The harvesting period for Ramón seeds happens twice a year, once around March and again around September. The harvest season lasts approximately one month. The harvesting period appeared several times in the answers of several interviewees as a determining factor of the amount of Ramón available to the market and the conditions in which they harvested the seeds. According to a female harvester from Uaxactum, the number of seeds available and the time they will be available depends on when and how those harvests are going to take place. The same interviewee goes on to say that, "climate change affected the harvesting season. We cannot be 100% sure when the harvesting season is going to be. It is more unpredictable". Most of the harvesters we interviewed from the Amul and Uaxactun committee claimed that climate change interferes with the number of seeds available for harvest.

With regards to the storage capacity, one of the interviewed female harvesters commented that, in 2020, during the pandemic, the communities had a very good harvest, but they could not sell much of what they collected because the associations no longer had a place to store the harvest. The interviewee also explained the reason this happened. According to the interviewee, during the pandemic, the demand for Ramón seeds fell far below normal, which caused this problem. ACOFOP's representative also declared that FORESCOM is able to store around 342 to 400 "quintales" of green Ramón seeds at the moment. They are also able to store 1000 "quintales" of dried Ramón seeds, and are working on creating more space so that the communities can store their produce for future sale. In this way, the problem now is to secure enough working capital to pay the workers for the harvest before receiving the payments from the clients for it.

In addition to what has already been discussed on the matter, having working capital to pay the workforce is a recurrent problem in the communities we interviewed. One of the interviewed harvesters from the Amul committee noted that this is a recurring problem. According to the interviewee, the associations only have enough resources for working capital when they close a deal, which means that even when there is production, if there is not a known demand, the Ramón seeds cannot be bought by the associations; or, when they are bought by the association, they are bought at a much lower price than usual, as was also the case during the pandemic.

Financial Capacity Assessment

The access to working capital was a major difficulty identified during the research. Because of that, it is important to analyze that the availability of financial resources related to financing working capital for these communities so they can cover export investments and relevant contingent expenses. To match the non-profit and social contexts behind this export activity, we considered the availability of grants provided through the channels of community partners such as ACOFOP and the Rainforest Alliance, to support the export business of these communities as a component of this financial capacity assessment. This is in addition to the reinvested profits from their Ramón sales to make the business self-

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sustainable; it also includes the accessibility to bank credits and whether they are obtained easily. These financial resources are not only needed to fulfill the export requirements, but also for indirect costs such as operational or marketing expenses, which are also important for ensuring the self-sustainability of the export business of these local communities.

ACOFOP has access to funding from several bilateral donors and foundations, such as USAID, the Ford Foundation, and the Overbrook Foundation. The projects financed by those institutions are generally 2–3 years long, which means that they must write proposals continuously to keep the projects operative. The interviewed ACOFOP representative staff argued that the organization is doing a really great job maintaining continuous support for the programs that already exist. Due to the nature of the venture developed by the communities, they have access to a different category of loans from funding programs with zero interest rate. With those loans, the communities only need to pay back the money they received. This kind of loan works as a payment for environmental services to help forest conservation efforts and to empower community enterprises to bring them up to speed.

Pricing and Payment Mechanism

Many harvesters who have been interviewed complained about the pricing and payment for their Ramón yield. The pricing does not cover the risks they are exposed to in their harvesting activities, such as being exposed to snake bites and harmful bugs. This is in addition to overcoming the long distances they must cover in order to reach the harvesting areas, as there is no availability of cars to transport them to these harvesting sites. Female interviewees were the ones who complained most about the pricing systems, claiming that they are the most vulnerable to the harvesting activities due to their lack of access to adequate transportation facilities and harvesting equipment that helps them with harvesting, especially during heavy rainfalls, imposing risks on their lives as well. Additionally, the current pricing system does not allow them to benefit from the price increases of the U.S. market, going against the ultimate goal of the whole Ramón operation in the Mayan Biosphere Reserve communities of optimizing their livelihood. Moreover, a female harvester and quality control inspector in the Uaxactun community mentioned that they struggle with price changes set by the community association, which is responsible for collecting their Ramón produce to be prepared for the exporters. The harvesters are not involved in the Ramón resource management due to the lack of a formal contractual agreement on pricing and purchasing that guarantees their reward rights. Many of the harvesters who have been interviewed mentioned that their Ramón collection activity is important for securing their livelihood and for sending their children to schools and colleges. So, if harvesters are not being well-compensated for their hard work in Ramón collection, it might impose a risk on the continuity of the Ramón export business.

Marketing Capacity

The Ramón organic certification is one of the many ways that Ramón producers can increase their U.S. market access and penetration. Additionally, sustainability in sourcing and along the export value chain brings direct benefits to people and nature, while bringing business benefits as well. Many research studies have demonstrated the positive business impacts of putting sustainability standards into their marketing business strategy. For instance, 98% of businesses experience sales and marking benefits after adopting sustainability standards. Such benefits include areas such as improved reputation (60%), increased profitability (53%), cost reduction (30%), and increased production (30%). Moreover, 78% of US household heads feel better when purchasing products that are sustainable or better for the environment.

4. Discussion

Based on what we have studied, we believe that the community forest enterprise will become "export-ready" as a responsible business when it manages to export and maintain its capacity to meet international demand, thereby improving the lives of people who

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live in the community. Based on what we heard in the interviews and the documents we analyzed, we can point to the following proposals for improving export gaps as well as strengthening communities:

4.1. Profitability Mechanism

Adjust the pricing regime: the Ramón committee, FORESCOM, and ACOFOP can start finding other buyers or negotiating the pricing with existing buyers, subsequently benefitting the harvesters. A variation on this indirect exporting channel is the use of e-commerce platforms to sell Ramón directly from communities through FORESCOM. There should be a profit-sharing mechanism that allows the Ramón harvesters to share the benefits of higher Ramón export returns.

4.2. Value Chain Traceability

Currently, market needs are rapidly changing as consumers' consciousness is developing day by day; hence, consumers have become highly interested in looking for sustainably and responsibly produced goods. In that sense, simple marketing claims might be no longer sufficient to assure the sustainability of Ramón production. We think that inserting an integrative monitoring system would optimize the export value chain in two areas. The first one is the ability to access good data throughout the value chain relating to Ramón harvesting date and location, quality, and inventory tracking, so as to help the Rainforest Alliance and other community partners make more informed decisions. The second one is increasing the community profitability of Ramón by raising customer satisfaction and confidence in the product quality and the responsible production process.

4.3. Community Leadership

Appropriate institutional arrangements that allow shifting the authority over Ramón resource management backwards, in the direction of small community harvesters, by involving them in the production, processing, and pricing activities.

4.4. Harvesting Operations

The Ramón harvesting operations need to be optimized. FORESCOM and RA need to devote funding towards working capital, including Ramón seed collecting equipment, to ensure safer and efficient harvesting operations for the community harvesters. This would also help the communities overcome the Ramón supply vulnerability problem, as it would allow the communities to safely access risky Ramón harvesting areas without being attacked by snakes. The working capital funding also needs to include trucks that can safely transport communities to and from the harvesting areas, especially during heavy rain falls. Moreover, the local communities need more funds from community partners to finance warehousing facilities, to allow them to store and process Ramón seeds themselves without passing through several intermediaries, thereby providing them with some sort of agency, which is essential for optimizing their Ramón export produce, as well as for benefiting from the markup price difference to sustain their livelihoods and resilience. Therefore, we believe that less dependence on third parties in the export process can strengthen communities and their businesses.

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