

# Sustainability, Resilience, and Social Impact in Agro-Processing in Dominica

## Teaching Notes

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PREVIEW

## Teaching Notes

### Case Summary

Bevin Etienne, CEO and founder of Sustainable Planning and Development LLC (SPD), has enjoyed initial success with LUSH cosmetics with sales of bay leaf oil from Dominica. Now Bevin is receiving interest from other buyers. The SPD processing facility is located in Delices, a small village in the south-east of Dominica.

In 1979, Hurricane David struck Dominica and destroyed its infrastructure and productive sector. The agriculture sector was devastated. Bay leaves were one of the few crops able to regenerate and regrow swiftly in the aftermath of Hurricane David. Bevin's father became the manager of the Dominica Essential Oils and Spices Cooperatives (the Cooperative).

Sixty-five percent Dominica's bay oil is produced by the Cooperative, set up in the late 1960s to generate sustainable livelihoods for rural communities. The Cooperative engaged smallholder farmers (SHFs) in rural communities by bringing them together to pool their harvest for higher collective production levels. However, the Cooperative has recently faced operational issues such as repeated government interference and has become less self-sustaining.

Bevin was struggling to determine what interventions SPD should offer to bay leaf smallholder farmers to ensure a regular supply to the SPD facility.

### Teaching Objectives

By reading this case study, students should be able to:

- Evaluate the operational and financial implications involved with a micro, small and medium enterprise (MSME) legally establishing a commercial presence in different geographies and jurisdictions.
- Discuss the strategic and financial implications of an MSME taking on additional capital from various external sources.
- Identify relevant growth opportunities for an agro-processing MSME, and assess the costs (financial costs and opportunity costs) associated with taking on each opportunity.
- Consider and propose interventions for an agro-processing MSME to successfully engage with smallholder farmers (SHFs), while ensuring commercial viability and scale.

### Target Audience

This case is suitable for undergraduate and graduate students enrolled in entrepreneurship and business. It is applicable to students interested in social entrepreneurship, strategy, finance, supply chain management, and international business. Specifically, this case fits well in courses such as Strategy and Systems, Social Entrepreneurship, Entrepreneurial Finance, Sustainable Business, International Business, or Supply Chain Management. Within these or similar courses, this case can help illustrate:

- the importance of determining the appropriate geography and jurisdiction for an MSME in emerging markets to establish a legal presence;
- the role of relevant policy initiatives in unlocking growth opportunities for MSMEs, particularly in emerging markets;
- the financial and opportunity costs of tapping into different sources of external capital to achieve specific growth targets;
- how evolving consumer behavior and demand trends can better inform priorities for growth and expansion;
- how firms engaged in agriculture or agro-processing can assess different interventions of successfully engaging with SHFs.

Additionally, this case could be used to prime a discussion on doing business in emerging markets, by identifying the crucial role of key pillars in the ecosystem: governments, investors, SHFs and rural poor, and relevant regional and international trade agreements.

## Suggested Teaching Strategy

This case seeks to address various challenges that an entrepreneur faces when deciding how to scale their business. As a result, the case should ideally be taught across two lectures.

Teachers may want to start the first lecture with a brief overview of the company situation and the dynamics of the economy of Dominica. Next, present the key stakeholders in this case—the company itself (i.e., SPD), multilateral institutions, customers (i.e., industry buyers), and smallholder farmers (SHFs)—as well as the major points pertaining to each stakeholder. Teachers may then ask students to separate into small groups to discuss the first two questions, spending five to seven minutes on each.

For the first discussion question, the teacher should encourage students to recognize that despite respectful disagreements on the pros and cons of this decision, the optimal solution would be to pursue a hybrid model that seeks to leverage the pros while mitigating the cons. For instance, SPD could consider keeping its parent company registered in Virginia, while establishing a legal subsidiary in Dominica.

For the second discussion question, teachers should encourage students to analyze the overall industry growth as well as the country-by-country breakdown of each relevant industry market. This will reveal opportunities for SPD to focus its business development efforts on specific countries within each industry.

The second lecture should start by going over the framework on the Four A's of Adoption, case Figures 3–6, as well as the alternative supply chain scenarios that smallholder farmers would face when engaging with the Cooperative and SPD. Teachers should then ask students to separate into small groups to discuss Question 3. For this, teachers should encourage and prioritize the discussion of the price that SPD should pay to SHFs for each harvest of bay leaves, given the ample data available to evaluate this initiative.

Finally, teachers are encouraged to present Question 4 to students more in the form of a strategy question instead of a finance question. In other words, students should be encouraged to engage in robust discussions on the theoretical pros and cons of each financing alternative, instead of conducting extensive financial analyses to justify their choice. Once again, students should be separated into small groups to discuss Question 4, given the calculations involved.

## Further Resources

The case study invites students to explore the decision-making process for SPD, a founder-led MSME involved in agro-processing in the Caribbean. Throughout the case, SPD encounters different inflection points at which decisions must be made. Teachers may introduce the theory of effectuation or effectual reasoning to students, in order to position them to think more like an entrepreneur. This will enable students to better navigate the multiple variables presented in the case (e.g., opportunities of increased demand, challenges with the supply of bay leaves, external capital requirements, etc.)

The work of [Sarvasvathy \(2001\)](#) can help introduce effectuation to students. Given that this case study may be used in non-entrepreneurship courses, teachers can offer a summary view of the theory of effectuation that touches on its five principles: bird-in-hand, affordable loss, lemonade, patchwork quilt, and pilot-in-the-plane. Sarvasvathy presents these principles in a [three-pager](#), which can be handed out to students the lecture before the case study is discussed, as a supplementary reading.

## Suggested Answers to Discussion Questions

1. What are the benefits and disadvantages for SPD to be restructured with an established legal presence in the Caribbean?

## Pros:

- Creating an opportunity to tap into MSME initiatives offered by relevant multilateral institutions in the region. This can significantly improve SPD's ability to scale by leveraging relatively inexpensive initiatives.
- Offering greater potential to directly contribute to Dominica's economic development, by paying taxes to the government of Dominica. SPD, as a registered corporation in Virginia, currently pays taxes to the state and federal government in the United States.

## Cons:

- Registering in Dominica exposes SPD to a higher corporate income tax rate of 25%, versus 21% that is currently paid in the United States.
- Establishing a legal presence in Dominica will enable SPD to tap into relevant initiatives offered by multilateral institutions. However, there is the significant downside of SHFs' distrust in SPD management if the company leverages such initiatives, due to the negative image of working directly with the government of Dominica which is responsible for the disbursement of initiatives. This can create serious obstacles for SPD to achieve its goal of securing sustainable supply of bay leaves for the processing facility.
- SPD may come across certain obstacles, including significant amounts of red tape and rent-seeking behavior, while establishing a legal presence in Dominica.
- Being a registered corporation in the United States contributes to easing investor concerns of investing in SIDS in the Caribbean. This also opens up the opportunity to gain easier access to investors and capital based in the United States.

## 2. Which export markets/countries should SPD prioritize to identify potential customers? Which product label certifications could SPD seek to incorporate for its bay essential oils? What are the benefits if SPD considers producing value-added products?

The market for essential oils is forecast to grow at 9% CAGR globally to reach USD 15 billion in 2026. The use of essential oils as raw material ingredients will grow by 1.1% CAGR globally by 2023. More importantly, global demand for essential oils is centered in Europe (UK, France, Germany), the United States and Canada (i.e., North America excluding Mexico), and Asia Pacific (students can assume Asia Pacific demand to be concentrated in India, China or both, due to phenomenon of the growing middle class in these countries).

A total of 26.4% of consumers will boycott brands that do not align with their social and political beliefs. Consumers in France, Canada, the UK, the United States, and China are most likely to alter their everyday actions to have a positive impact on the environment. Further, over 20% of consumers in these countries are worried about climate change. Thus, consumers in these countries are most concerned with environmental sustainability and societal impact issues.

Based on the above, SPD's set of priority countries should include France, the UK, the United States, Canada, and China.

SPD must seek to implement a label certification to better orient its products to consumer trends. Students should then conduct a cost-benefit analysis to determine what specific certification will yield the highest raw dollar return on investment.

SPD's annual sales are likely to be constant, that is, 240 kg/year (20 kg per month for January 2020 and February 2020 used as base) or 109 lb/year (1 kg = 2.205 lb). Using figures for January 2020 and February 2020, this is USD 200/kg or USD 441/lb, which results in a base (i.e., no premium) annual revenue of USD 48,000/year.

With the NPA certification, SPD will be able to realize a 3–4% premium on its sales. Thus, potential premium

realization with the NPA certification is roughly USD 50,000. Annual certification costs for the NPA certification are USD 500–2,600 per year. Thus, if certification costs are below USD 2,000 per year, SPD will realize additional value creation by leveraging the NPA certification; however, if certification costs exceed USD 2,000 per year, then investing in the NPA certification does not yield financial benefits.

There are two key reasons why SPD is not in a position to produce value-added products. First, the supply of bay leaves is inconsistent, and SPD first needs to solve the issue of engaging with SHFs via a successful intervention. Second, SPD does not have sufficient capital to invest in value-added products. Even if SPD management would be able to secure capital from an external source, investing in scaling the processing capacity will be a more feasible and commercially viable opportunity to pursue in the immediate term. Despite these limitations, students should identify that producing value-added products will enable SPD to earn higher margins, leading to commercial success as well as to significant positive societal impact for SHFs.

### 3. What potential initiatives should SPD explore to successfully engage with SHFs? How should these initiatives be structured against the farming life cycle of the typical bay oil SHF in Dominica? How will these affect the profitability of SPD going forward?

Any initiative that SPD would pursue must demonstrate a tangible effect of wealth increase for SHFs. As mentioned in the suggested teaching strategy, teachers should prioritize the discussion of the price SPD should pay to SHFs as a potential initiative. A proposed solution for this initiative is shown in [Teaching Notes Tables 1](#) and [2](#). Teachers can also encourage discussing a hybrid model of initiatives, which seeks to implement two distinct initiatives at various stages of the farming life cycle.

**Teaching Notes Table 1. Determining Expenses and Net Earnings of SHFs When Engaging With the Cooperative**

Particulars	Amount per harvest (USD)	Source	Comments
SHF expenses up to sale of bay oil to the Cooperative	257	Case Figure 5	Students should identify that SHFs incur expenses on organic/inorganic fertilizer application, harvesting, distilling into dark bay oil and transportation
SHF gross earnings from sale of bay oil to the Cooperative	472	Case Figure 5	
SHF net earnings from sale of bay oil to the Cooperative	215	Calculation	
SHF net earnings (%) from sale of bay oil to the Cooperative	46%	Calculation	Net earnings (%) expresses net earnings as a percentage of gross earnings

**Teaching Notes Table 2. Determining Expenses and Net Earnings of SHFs When Engaging With SPD**

Particulars	Amount per harvest (USD)	Source	Comments
COGS	422	Case Figure 4; calculation	Students should carefully read the notes on case Figure 4 to notice bay oil yield per harvest for SPD operations
Revenue	1,200	Case Figure 4	Students should carefully read the notes on case Figure 4 to notice bay oil yield per harvest for SPD operations
Excess gross profit margin (%) over the 12% Cooperative		Case Figure 4; calculation	Students should recognize that SPD has room, via higher gross profit margins over the Cooperative, to offer same or more generous prices to SHFs versus that of the Cooperative
SHF expenses up to sale of bay leaves to 157 SPD		Case Figure 5	Students should recognize that SHFs incur costs on organic/inorganic fertilizer application, harvesting, and transportation to SPD (safe to assume that cost of transportation for SHFs is same, irrespective of transportation to the Cooperative or SPD)
SHF net earnings from sale of bay leaves to SPD, assuming net earnings for SHFs equals that earned from sale of bay oil to the Cooperative	215	Calculation	Matching the prices that the Cooperative pays to SHFs for bay oil dollar-for-dollar is on the more conservative end for SPD to offer prices to SHFs. This conservative assumption is based on insights from the case study, which mentions that SHFs are more likely to adopt initiatives if these lead to wealth increase
SHF gross earnings from sale of bay leaves to SPD, assuming net earnings (%) equals that earned from sale to the Cooperative	372	Calculation	
SHF net earnings (%) from sale of bay leaves to SPD, assuming net earnings equals that earned from sale to the Cooperative	57.80%	Calculation	Students should recognize that SHFs will earn higher net earnings (%) by accepting the same price (USD) from SPD as that offered by the Cooperative, while incurring lower costs; specifically, SHFs do not incur any costs on distillation when selling to SPD. In addition, from information presented in the case study, students should be confident that a higher net earnings (%) for SHFs will lead to SHFs opting to sell to SPD, given that SHFs are more likely to adopt

initiatives if these lead to wealth increase.

Another alternative approach to the solution would be for SPD to match or slightly improve the net earnings (%) for SHFs, compared to that received by selling dark bay oil to the Cooperative

Amount currently paid to SHFs	SPD pays to 110	Case Figure 5	Students should assume that SPD pays the same amount to SHFs, per harvest, for harvesting bay leaves, as presented in case Figure 5
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Excess amount SPD is required to pay to SHFs to procure bay leaves, assuming net earnings for 262 SHFs (%) equals that earned from sale to the Cooperative

Calculation

New COGS with new price paid to SHFs	685	Calculation	Students should determine that higher price paid to SHFs will increase SPD's COGS
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New gross profit margin (%)	42.92%	Calculation	Students should determine that higher price paid to SHFs will increase SPD's COGS
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4. What options are available to SPD for raising additional capital? Should SPD management aim to secure the solar panel alone, the larger distiller alone, or both at the same time? What financing alternative would be most ideal for SDP to pursue?

If SPD management can secure annual orders of larger volumes of bay essential oil from LUSH and other industrial buyers, then it may make financial sense to pursue the capital required for the larger distiller. For instance, assuming that SPD is able to secure 50% of the current potential demand from LUSH and other industrial buyers, SPD's annual orders would increase from 530 lb to 1380 lb, in a very conservative case (50% of 700 lb from LUSH and 50% of 1,000 lb from other industrial buyers).

Further, the 35-gallon distiller is able to process 3,080 lb of bay leaves in 87 hours to yield 13 lb of essential oil, and this distiller is currently being used at capacity. Thus, to process 1,380 lb of essential oils, SPD will need to secure at least 327,000 lb of bay leaves annually (calculated by pro-rating the relationship between bay leaves harvested and essential oils yield). However, the new distiller will improve distillation efficiency by at least 20%. Thus, in a very conservative case, SPD will need to secure the supply of at least 261,600 lb of bay leaves every year.

Dominica produces 60,000 lb of bay essential oil per year. It is fair to assume that most of this is processed in artisan distillers, which at best will still be less efficient compared to SPD's 35-gallon distiller. Thus, Dominican bay farmers currently harvest at least 14 million lb of bay leaves annually. With this information, it is safe to assume that SPD will be able to secure the annual harvest target 261,600 lb of bay leaves with the right SHF intervention (see response to Question 3 for details on SHF intervention).



Under the right circumstances, SPD could secure both increased orders from LUSH and other industrial buyers, as well as increased bay leaves supplies from SHF via the right intervention. Assuming that SPD does not secure a label certification for its bay essential oil, the price of bay oil produced by SPD will still be USD 200/kg or USD 90/lb, using revenue and units sold figures from case Table 2. This means that the annual revenue upside potential is USD 124,200 (USD 90/lb x 1,380 lb, with the calculations and figures used above), and thus, targeting at least USD 35,400 worth of additional capital to raise will be feasible. A quick cost-benefit analysis on the implications of pursuing USD 10,000 to install the solar panel would reveal USD 10,000 as a cost, and USD 6,716 in benefits in the form of annual cost savings on petrol and propane (a note in case Table 2 reveals that petrol and propane costs will be USD 0 if and when the new solar panel is installed).

An alternate scenario may be that SPD would be unable to secure additional orders from LUSH or other industrial buyers due to various, but well-justified, reasons (e.g., inexperience of management team, operations being too nascent, uncertainty on eventual demand from industrial buyers due to COVID-19, etc.). In this case, annual revenue is likely to remain around the USD 48,000 mark; this assumes, in an optimal scenario, that monthly revenue achieved through LUSH's monthly orders will continue to be USD 4,000 per month (see case Table 2). With USD 48,000 in annual revenue, pursuing USD 35,400 in additional capital will prove difficult as investors are likely to be reluctant to invest over 70% of annual revenue in the form of additional capital. Thus, the company may benefit most from the USD 10,000 investment for the new solar panel.

SPD will likely choose the impact equity investment option as its source of external capital. First, the impact investor expects a 5% return on their investment, which is the lowest of all options presented in case Table 1. Second, pursuing an impact investment opportunity is in line with SPD's goals of achieving sustainability, resilience, and societal impact through its processing facility's operations.

Concessional loans are a close second to impact equity investments, given the more attractive rate of return. However, students should recognize that tapping into loans offered by multilateral institutions or development finance institutions will require SPD to coordinate efforts with the government of Dominica. This has the potentially negative impact of deteriorating relations between SPD and SHFs and threatens to disrupt SPD's sustainable supply of bay leaves from SHFs.

Commercial bank loans and direct equity investments do not require rigorous impact measurement and reporting. In addition, commercial bank loans offer SPD the benefit of an interest tax shield on debt. However, commercial bank loans may be undesirable due to the relatively high rate of required return. Direct equity investments may be undesirable due to the high rate of expected return, as well as the dilution of owner's equity in SPD.

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