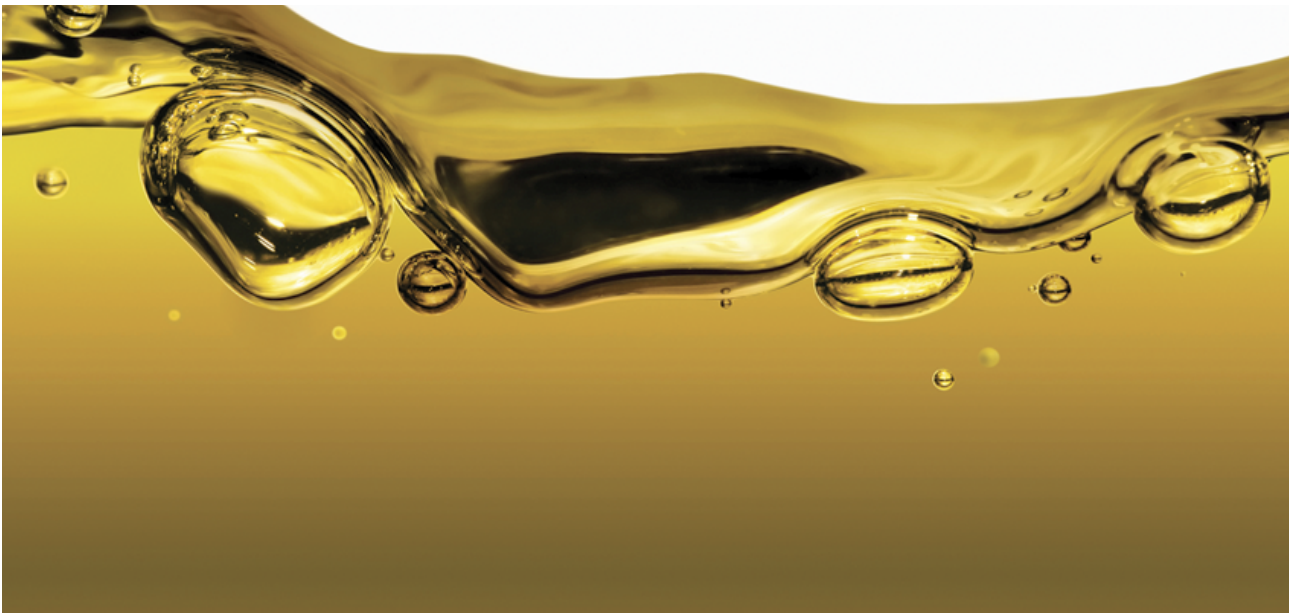


Jamaican Castor Oil Industry Research and Strategy



Prepared by Frankie Whitwell (Consultant)

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Acronyms

Table of Acronyms	
BP	British Pharmacopeia
BSJ	Bureau of Standards Jamaica
CARDI	Caribbean Agricultural Research and Development Institute
CGCO	Commercial Grade Castor Oil
Non-CGCO	Non-Commercial Grade Castor Oil
EU	European Union
FCL	Full Container Load
GI	Geographical Indicator
IADB	Inter-American Development Bank
ICOA	International Castor Oil Association
IFC	International Finance Corporation
ISO	International Standards Organization
JAMPRO	An agency of MICAF that promotes business in exports and investment.
JBCO	Jamaican Black Castor Oil

JBDC	Jamaican Business Development Corporation
JBF	Jamaica Business Fund
JBU	Jamaica Baptist Union
JCIA	Jamaica Castor Industry Association
JIPO	Jamaica Intellectual Property Organization
JMEA	Jamaica Manufacturing and Export Agency
MT	Metric Ton
MICAF	Ministry of Industry, Commerce, Agriculture and Fisheries
MOQ	Minimum Order Quantities
R&D	Research and Development
SRC	Scientific Research Council
SCJH	Sugar Company Jamaica Holdings
USP	United States Pharmacopeia
US	United States
UWI	University of West Indies
WB	World Bank

1. Executive Summary

This strategy is based on primary research and active participation from a wide range of industry players, including an industry strategy workshop on Tuesday 22nd January 2019. The research has identified a series of opportunities and strategic pillars that will allow the industry to fully maximize its growth potential.

Summary of research findings

As part of this assignment, market and consumer analysis was carried out in order to generate an evidence base to help guide the industry over the short, medium and long term. The key findings of this research are as follows:

- **The industry is not competitive in the global Commercial Grade Castor Oil (CGCO) category** – the world price for one gallon of CGCO is \$4.54. The cost of the raw materials required for one gallon in Jamaica, excluding any processing operating costs or margins, is \$24.57. This pricing gap presents significant challenges to industry players that are exploring the production and use of CGCO for bio-fuel in the domestic market.
- **The industry naturally has a comparative advantage in Jamaican Black Castor Oil (JBCO)** – by nature of the fact that Jamaican Black Castor Oil is traditionally an oil produced in Jamaica, authentic JBCO has a comparative advantage over 'JBCO' originating from other countries.

- **7% of the US consumer base regularly purchases castor oil for cosmetic use** – this is an extremely large segment of the US consumer base. With an estimated total demand of 4,253 MT demand per annum (936,674 gallons) in the US with retail value of \$187m per annum. 61% of sales are products that have castor as an ingredient, whilst 39% are castor oil stand alone products.
- **Demand for JBCO outstrips supply in the US market** - 15% of all US castor oil sales are labelled and marketed as JBCO. Representing 638 MT (140,501 gallons) demand per annum for JBCO products with a retail value of \$28m per annum in the US alone. However, the current size supply capacity in Jamaica is estimated at 186 MT (41,000 gallons) with an ex-works value of \$4.87m.
- **Approximately 71% of JBCO sales in the US do not originate from Jamaica** – this research provides empirical evidence to back up previous anecdotal comments accusing non-Jamaican countries of marketing and labelling their products as JBCO.
- **39% of US castor oil consumers are aware of JBCO** – there is significant international awareness of JBCO as well as a high perception of quality, an association with ‘Brand Jamaica’ and thought to be inherently positive for the environment.
- **73% of consumers that are aware of JBCO are willing to pay more for it** – with the most common potential price premium being between 10% - 20% more than current prices. In total 86% of JBCO aware consumers are willing to pay up to 30% more for JBCO over other types of oil.
- **‘Authenticity’ and ‘Sustainability’ will generate further added value sales for JBCO** – 53% of consumers said they would be willing to pay more for JBCO in the future if it could demonstrate ‘sustainability’ such as organic certification. 27% of consumers said they would be willing to pay more for JBCO in the future if it could demonstrate ‘authenticity’ of origin and processing procedures.
- **Despite this rapid growth opportunity there is no consensus on what JBCO is in Jamaica** – even though there is significant international awareness and demand for JBCO, the industry does not yet have a standard, grading or legal protection framework in place to safeguard the industry.

Vision for the industry

The following vision statements are provided as realistic and achievable goals for the industry over the 5 years and beyond.

Industry Goals

Short term (1 – 2 years)

To increase supply to match demand and develop a JBCO specific standard and legal protection framework to safeguard the industry. In the US market alone, this can increase the size of the industry from USD\$4.87m to USD\$16.72m. Meeting the demand for JBCO in the US market alone will create 3,576 jobs on castor farms. There will also be significant full time job creation at other parts of the value chain such as processing, manufacturing and distribution.

Medium term (2 – 5 years)

Aggressively expand and grow JBCO market share in other markets including the EU, as well as converting cold press consumers to JBCO products, growing the total size of the industry to \$30m plus, creating at least 7,000 jobs across the value chain. The Jamaican cosmetic industry will maximize the value from the castor ingredient market by increasing the export of finished castor based cosmetic products.

Long term (5 years plus)

The industry will have a sophisticated, diverse and well protected product range, including the potential production of CGCO for bio-fuel usage, as well as non-CGCO. The industry will supply wide spanning markets and will benefit from a range of innovations that help to further support productivity, competitiveness and growth.

Summary of strategic pillars and key roles for industry stakeholders

In order to realize these industry goals, the following strategic pillars have been developed. Some of them are 'Essential Pillars' to provide the industry with the correct foundations and structure to grow, whilst others are 'Longer Term Pillars' that will build on these foundations and maximize growth and impact for the economy.

Strategic pillars and prioritization		
	Essential Pillars	Longer Term Pillars
1. Production capacity of castor seeds	✓	
2. Regulatory standards and protection	✓	
3. Processing capacity of castor oil	✓	
4. Positioning and promotions	✓	
5. Upgrading into manufacturing		✓
6. Outsourced manufacturing		✓

The table below illustrates a summary of key roles for each of the industry stakeholders. This report subsequently goes into greater detail and explanation on the relative costs and benefits of each pillar, the expanded roles and responsibilities of relevant industry players and stakeholders, as well as potential funding sources.

Summary roles for key stakeholders

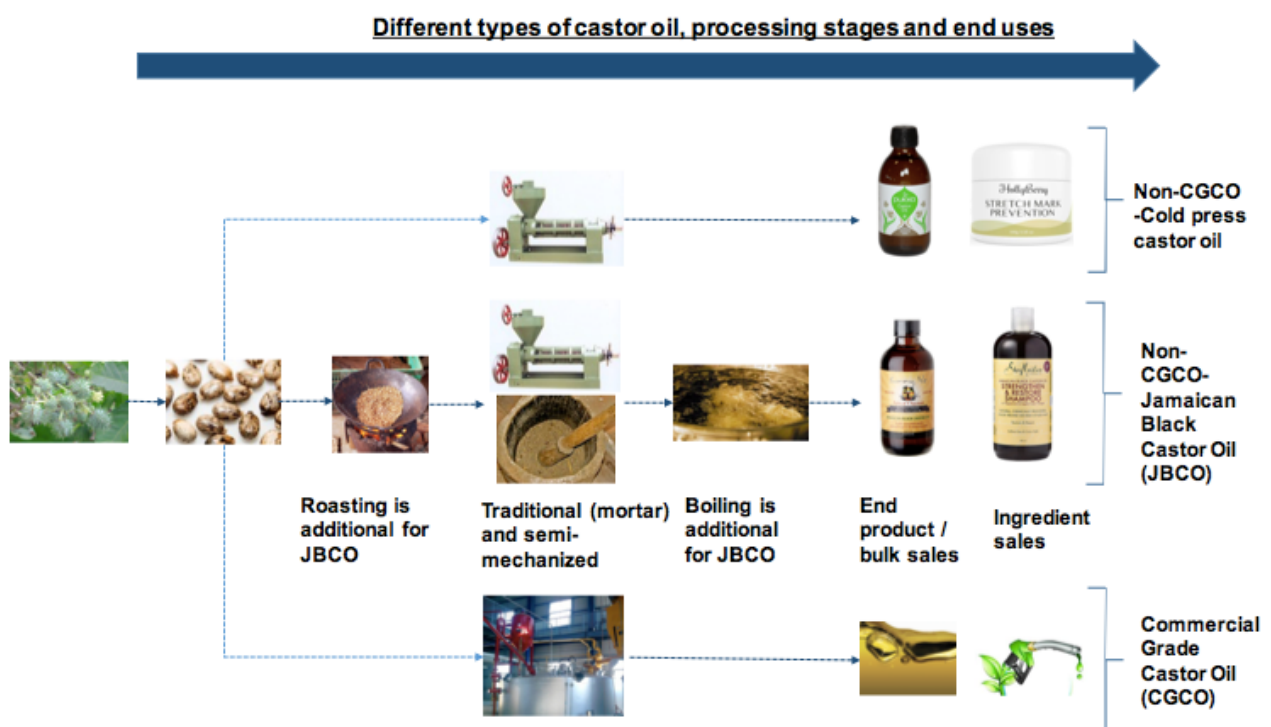
Strategic Pillar	JCIA	JAMPRO	JBU	JMEA	CARDI	RADA	Bodles / SRC	UWI MONA	JBDC	Hipro / Fersan	BSJ	JIPO	MICAF
1. Production capacity	Coordinate investment and implementation of the future Castor Agro Park		Cluster manager to aggregate seed, and support smallholder castor farmers			Agronomy training partner	Technical services and research partner		JBU Cluster training partner	JBU Cluster partner			Key funding, policy and land allocation partner
2. Regulatory standards and protection	Provide leadership, strategic direction and coordination		Provide support that can benefit farmers and the industry standards		Manage the process of germplasm collection			Lead the JBU cluster R&D project			Form and chair the JBCO standards committee	Register certification mark and Geographical Indicator (GI)	
3. Processing capacity		Identify foreign direct investors					To establish and manage the seed bank. Lead testing at the agro park				To oversee the implementation of the JBCO standard		
4. Positioning and promotions	Support members to implement improved positioning and promotional activities	To develop and manage a targeted industry wide promotional strategy and campaigns											
5. Upgrading into manufacturing	Facilitate linkages between castor	Promote investment opportunities		Facilitate linkages between							Provide guidance and advice		

	producers and relevant cosmetic manufacturing companies	within the Jamaican cosmetic industry		cosmetic manufacturing companies and the castor industry							on necessary standards for export markets		
6. Outsourced manufacturing	Facilitate linkages between castor producers and relevant cosmetic manufacturing companies			Facilitate linkages between cosmetic manufacturing companies and the castor industry									

2. Industry Analysis

Different timeframes for different castor oil grades

Due to the diverse range of end uses for castor oil across many industries, there are a multitude of different types and grades of oil. For the purposes of analysis, this report has created a Non-Commercial Grade Castor Oil category, which includes castor oil grades that are primarily used in cosmetic applications, including Cold Press or Virgin Oil, as well as the Jamaican Black Castor Oil (JBCO). The diagram below illustrates both CGCO and Non-CGCO, including the different activities, such as roasting and boiling that are often undertaken to produce JBCO.

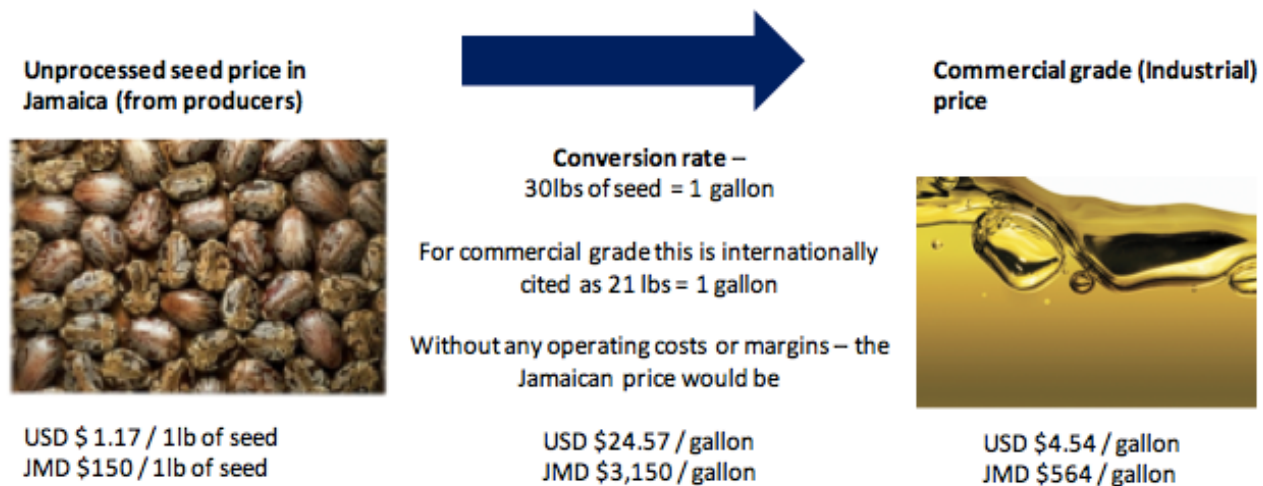


Commercial Grade Castor Oil (CGCO) has the highest volume, mass market grade that is traded on a global basis for use in transportation, fuels, lubricants, paints, waxes, textiles, electronics, inks and pharmaceuticals. Within the CGCO category, there are several variations including First Special Grade (FSG) which is the most common, where chemicals are used in its extraction as well as an additional bleaching process. The CGCO category also includes grades that are used for pharmaceutical applications, ie. the United States Pharmacopeia (USP) and British Pharmacopeia (BP). In addition, CGCO has a premium grade called Pale Pressed grade, which is only pressed once and is free of matter and low in acidity.

Competitiveness analysis between different grades

As part of this strategy development, analysis has been carried out to understand which grades the industry is most commercially competitive in, which grades the industry has comparative advantages and which grades present viable opportunities. Subsequently, this analysis has allowed for a prioritization of short term, medium term and long term opportunities for the industry.

Whilst CGCO represents an interesting opportunity for the future, especially given that it can be used as a renewable source of energy, the Jamaican industry should focus on producing higher quality grades for the cosmetic industry. The competitiveness analysis revealed that it cannot compete strategically against current world pricing. The diagram below illustrates the current price competitiveness against world pricing. The cost of raw materials alone is more than five times the world price.



Moreover, CGCO is not currently being produced in Jamaica, despite some investments made in research and development by the Petroleum Corporation of Jamaica (PCJ). While there are plans to establish CGCO plantations and processing to service the potential introduction of a bio-fuel in Jamaica, significant level of capital investment, capacity and policy decisions to secure ongoing government support would be necessary to justify such line of products.

Conversely within the Non-CGCO category, the industry has existing supply chains, capacity and operations that can be scaled up as a rapid growth opportunity in the short to medium term. Furthermore, the consumer research (see section 3 of this report) indicates a significant awareness and willingness-to-pay more for JBCO amongst international castor oil consumers. From a pricing perspective, the diagram below illustrates non-CGCO brands available in Walmart in the US market. The products on the left hand side are JBCO products and the products on the right are Cold Press products. JBCO products are more expensive than Cold Press equivalents, however, they are ‘within reach’ of the Cold Press products, with a range of approximately 30%.



US \$8.75 / 4oz bottle
US \$ 280 / gallon



US \$7.84 / 4oz bottle
US \$ 251 / gallon



US \$6.37 / 4oz bottle
US \$ 203 / gallon



US \$5 / 4oz bottle
US \$ 160 / gallon



US \$4.75 / 4oz bottle
US \$ 152 / gallon

All prices are taken from Walmart in the US. www.walmart.com

4oz : 1 gallon ratio = 0.03125

As a result of this analysis of different castor oil grades and comparative advantages, this strategy has focused on growing and expanding the industry's non-CGCO sales and associated impact.

Value chain pricing analysis

The diagram below demonstrates current costs of production averaged over a two-year period for the commercial cultivation of one particular seed variety used by the JBU cluster project called the Nordestina variety. Whilst this pricing model is specifically for the Nordestina, which is a higher cost, higher yield seed variety, the model serves as a good indication and example of the distribution of value between industry players as well as an idea of end retail price competitiveness.

These prices were validated in farmer workshops carried out in September 2018. These costs are then built up to model a potential supply chain for castor oil sales into either the US or EU markets. Each of the downstream supply chain partner margins, such as distributors and retailers, are based on standard operating margins for non-Known Value Items (KVIs). The projected end retail price equates to \$312 / gallon which is USD\$9.76 / 4oz bottle - see highlighted values in green at the bottom of the table below.

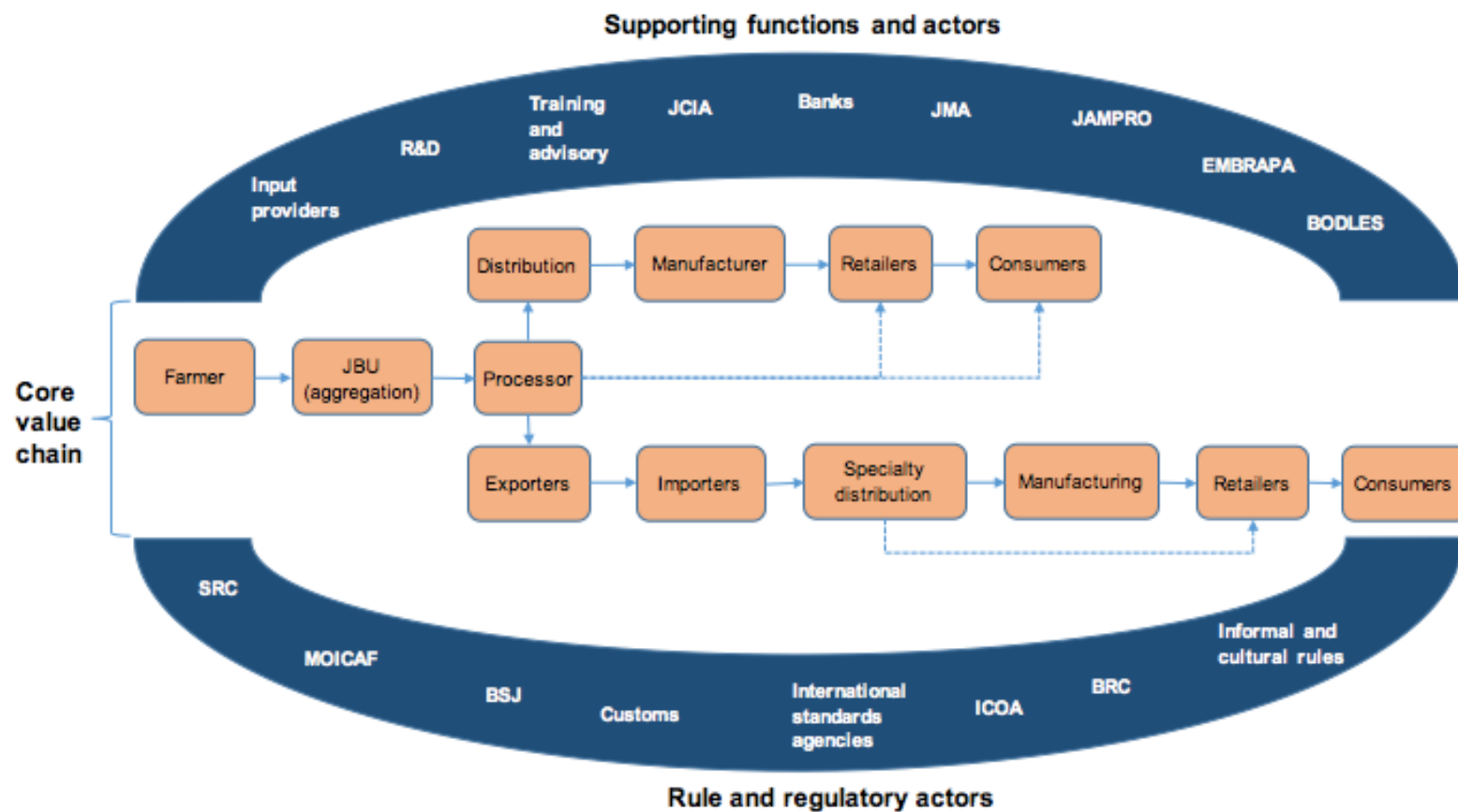
Although a 4-oz bottle priced at nearly \$10 represents the premium end of the current JBCO Walmart product pricing illustrated above, it still fits within the most common pricing bracket that consumers are willing to pay for (\$6 - \$10 / 4oz bottle). The details are provided in section 3 of this report.

Compete Caribbean is supporting a cluster project lead by the Jamaica Baptist Union (JBU) to increase the production capacity as well as kick-start innovative approaches to reduce the production cost. Historically, castor trees have been growing wild on marginal land with little attention. To increase production for commercial expansion of castor oil within and outside Jamaica however, farmers must use agronomic techniques and follow specific procedures to prevent grey mold, contamination, increase resilience and most importantly, to protect themselves and other industry stakeholders. The cluster project will establish a Castor Innovation Center to optimize productivity without compromising sustainability with the objective of driving global competitiveness for the Jamaican industry.

1 GALLON OF JAMAICA BLACK CASTOR OIL - average JBU COP model				
		Domestic (\$ JMD)	Export (\$ USD)	Margin %
Farmer	Labour costs	\$212,000		
	Material input	\$2,250		
	Material other	\$19,286		
	Total farmer costs / acre	\$233,536		
	Gross profit / acre	\$250,000	\$1,941.48	52%
	Sell price yield / acre	\$483,536	\$3,755.11	
	Total sell price to JBU / llb	\$193.41		
JBU	JBU 9% commission revenue	\$17.41		
	Total sell price to processor / llb	\$210.82		
Processor	Conversion llb / gallon oil - 1 price	\$6,325		
	Processing - operational costs / gallon	\$3,500		
	Processing - gross profit / gallon	\$5,500		36%
	Processor ex-works price	\$15,325	\$119.01	
Domestic market	Distributor margin	\$3,700		19%
	Distributor sell price	\$19,025		
	Domestic retail margin	\$13,800		42%
	Domestic retail price point	\$32,825		
Export market	Shipping company cost		\$0.30	
	Cost Including Freight (CIF)		\$119.31	
	Import tariff		\$11.93	
	Contract packer and packaging		\$15.00	
	Distributor buy price		\$146.24	
	Distributor margin		\$35.00	19%
	Distributor sell price		\$181.24	
	Retail margin		\$131.00	42%
	Retail price point / gallon		\$312.24	
	Retail price point / 4oz bottle		\$9.76	

Value chain stakeholder analysis

The following diagram demonstrates an example value chain for non-CGCO that was developed in a CDP workshop in May 2018. The diagram also demonstrates wider players in the market system that provide supporting services or functions as well as rule makers and regulators.



Size of supply and demand for non-CGCO

Through a series of interviews and industry consultations, the research carried out during this assignment estimates the current volume of export ready supply of non-CGCO at 41,000 gallons (186 MT). This equates to a total ex-works value of US \$4.87m for the industry. The Compete Caribbean support JBU cluster project is projected to put 1,000 acres into production over the coming 3 years, which will convert to the equivalent of an additional 83,000 gallons of oil. In total, excluding other production increases, this will bring the total quantity of supply from the industry up to 124,000 gallons, growing the industry value to US \$14.79m.

From a demand perspective, research carried in the US market for this strategy, indicates that the size of JBCO sales in the US alone represent 140,501 gallons (638 MT).

The gap currently represents a missed revenue opportunity of \$11.75m (\$ JMD 1.5 billion) per annum in the US alone.



This provides empirical evidence that there is a significant volume of JBCO sales in the US market (approximately 71%) that are being marketed as JBCO products when they do not in fact originate from Jamaica.

The Business Environment and SWOT Analysis

The table below indicates high level strengths, weaknesses, opportunities and threats to the industry for non-CGCO sales.

Strengths	Weaknesses
<ul style="list-style-type: none"> Existing supply chains – the industry has functioning export supply chains that serve a multitude of international markets. Awareness – there is a strong international awareness of JBCO (approximately 39% of US castor oil consumers are aware of JBCO). Reputation for quality – the majority of castor oil consumers cite quality and effectiveness as a key driver to their JBCO purchases. Natural and environmental credentials – Jamaican castor oil is perceived as inherently 	<ul style="list-style-type: none"> No specific standards – there are no specific standards or quality control guidance on JBCO. No protection framework – there is no legal protection framework to safeguard the industry from non-Jamaican JBCO products. Limited production capacity – the current production capacity is not large enough to meet demand. Relatively high production costs – production costs are high in comparison to competitors. Limited processing capacity – the current

<p>natural and organic by the majority of consumers.</p> <ul style="list-style-type: none"> • Relative ease of cultivation of castor in Jamaica – on marginal lands, varying topographies, humidity level, and soil types • Large scale potential impact both from an employment and additional income perspective, as well as providing a diversified income for households. • Clear demand from farmers and processors wishing to start and scale up existing operations. 	<p>processing capacity is not large enough to manage the projected increase in production.</p> <ul style="list-style-type: none"> • No added value positioning – current export sales are not maximizing value from positioning according to consumer demands. • Limited production capacity to meet Minimum Order Quantities (MOQs) from international buyers, often 20' Full Container Loads (FCLs) of oil. • Limited consistency and regularity of supply to export buyers – this weakens competitiveness of future sales. • Limited commercially led R&D into the industry, due to the small scale of the industry and lack of demand.
Opportunities	Threats
<ul style="list-style-type: none"> • Immediate opportunity to capture JBCO market share – this represents an opportunity of US\$ 11.75m in the US market alone. • Medium term opportunity to convert Cold Press castor oil consumers to using JBCO products through promotions, protection and effective market placement. • Significant rapid growth and employment opportunities – castor production is said to employ approximately 2 – 3 workers per acre at various points throughout the seasons. There will also be significant employment opportunities in other aspects of the industry, such as processing. • Opportunities to explore other derivative products for domestic market including animal feed, kerosene substitutes and mesquite. 	<ul style="list-style-type: none"> • No industry quality standards - presents significant risks for the national brand and product liability exposure in end markets. • Limited legal protection – results in no capacity to safeguard the industry against non-Jamaican, non-authentic, JBCO projects. • Plant disease and wastage - significant risk from disease and grey mold outbreaks leading to high levels of wastage. • Low switching cost and barriers to entry - Lack of consistency for supplying large buyers could result in international buyers switching to suppliers from other countries permanently.

3. Consumer research analysis

A key component to the research carried out as part of this strategy development was to understand the demand for non-CGCO, the scale of demand, key consumer trends and motivating factors, awareness of JBCO and willingness to pay more. Understanding the demand is critical to maximizing future sales and growth of the industry through effective positioning and growth in supply. Conversely to historic and anecdotal evidence, the findings of the consumer research now provide a formalized empirical evidence base that the industry can use as a foundation for growth.

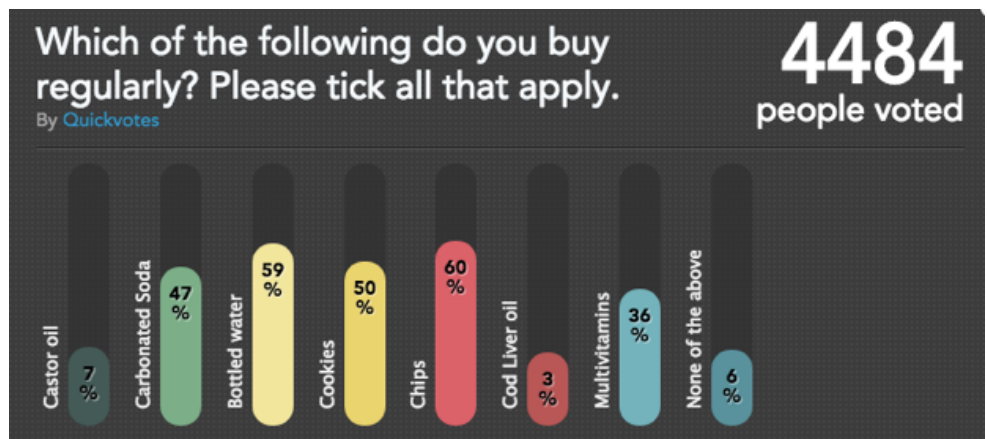
The consumer research was solely carried out in the US market, as this is a key strategic market for future export growth. The research initially carried out a screening question to 4,500 consumers across the US asking consumers which products they regularly purchase, one of the options was castor oil. A questionnaire was then administered to a sample of 213 consumers that regularly purchase castor oil to understand their demographics and behavior.

Key findings from the consumer research

A selection of the key findings from the consumer research are detailed below. A full report is available upon request from Compete Caribbean.

7% of US consumers regularly purchase castor oil or products with castor oil in them. This is a significant percentage of the US consumer base and reinforces other previous research indicating that the castor oil category is large in the US.

This translates to an annual demand in the US of 4,253 MT with a retail value of \$187m. From a trend perspective, a recent report from JAMPRO indicates significant growth over the coming years with the non-CGCO market set to reach \$2.33 billion globally by 2024.



Demographics of castor consumers

From a demographic perspective, US castor oil consumers are distributed in the following way:

- **66% are female and 34% male;**
- **The most common age category is 25 – 35 years old, followed by 35 – 50 years.**

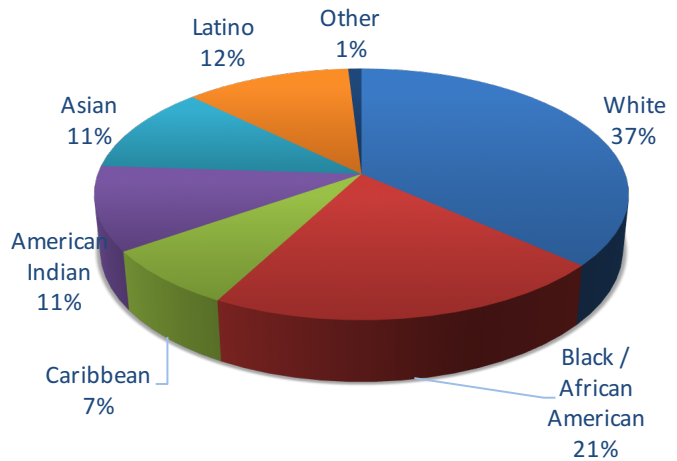
This data will be useful for the industry when carrying out effective targeted promotions in the future. The research also asked respondents to specify their ethnicity. The results of which are illustrated below in a pie chart. These findings are also useful for future promotional targeting, but also to support anecdotal hypothesis such as such as a *‘there are disproportionately higher numbers of Caribbean and Black / African American castor oil consumer’*. The findings reveal that **a higher than average number of Black / African**

American and Caribbean consumers do regularly purchase castor oil products.

Consumers were then asked to provide a breakdown of which types of castor oil products they regularly purchase. **61% of castor sales are as an ingredient in other cosmetic products, whilst 39% of sales were as individually bottled castor oil.**

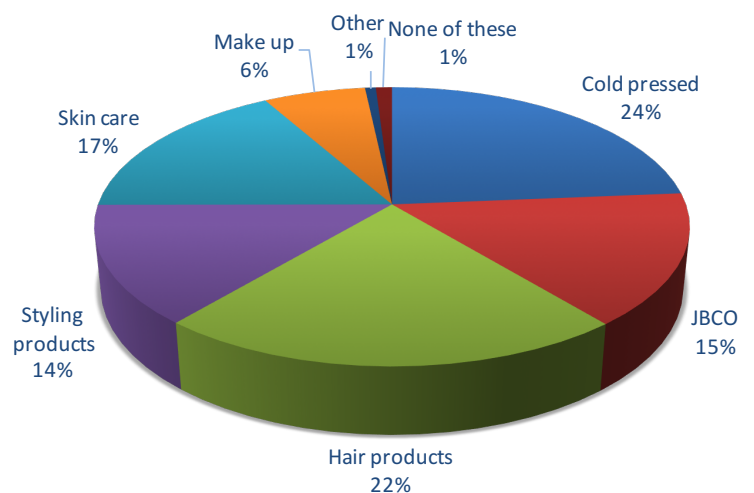
15% of sales in the US market are JBCO products.

Consumers were asked how much they normally pay and given a series of price ranges.

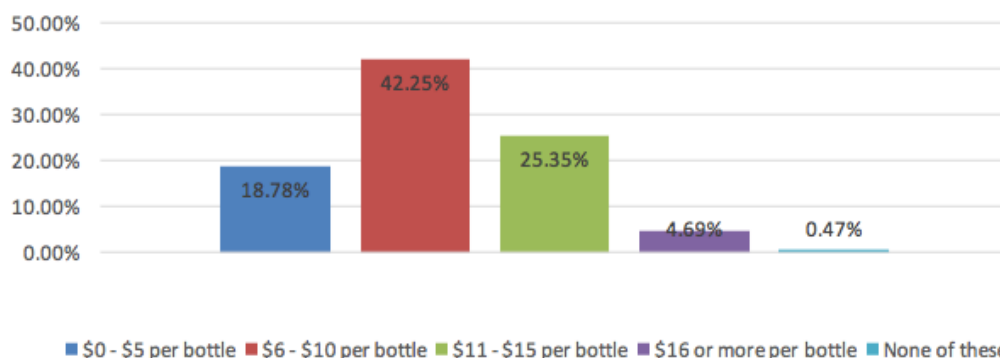


Current pricing and market segmentation

The most common price point is \$6 - \$10 per 125ml / 4oz bottle with 42% of consumers paying between this amount. This pricing range should be seen as a mass market range for JBCO products and tallies with the pricing illustrated in the Walmart pricing (in section 2 of this report). 25% of consumers pay between \$11 - \$15 which is still quite a large segment of the market and should be treated as mid-market range. 5% of consumers purchase at \$16 or more per bottle and this should be treated as premium and niche sales.

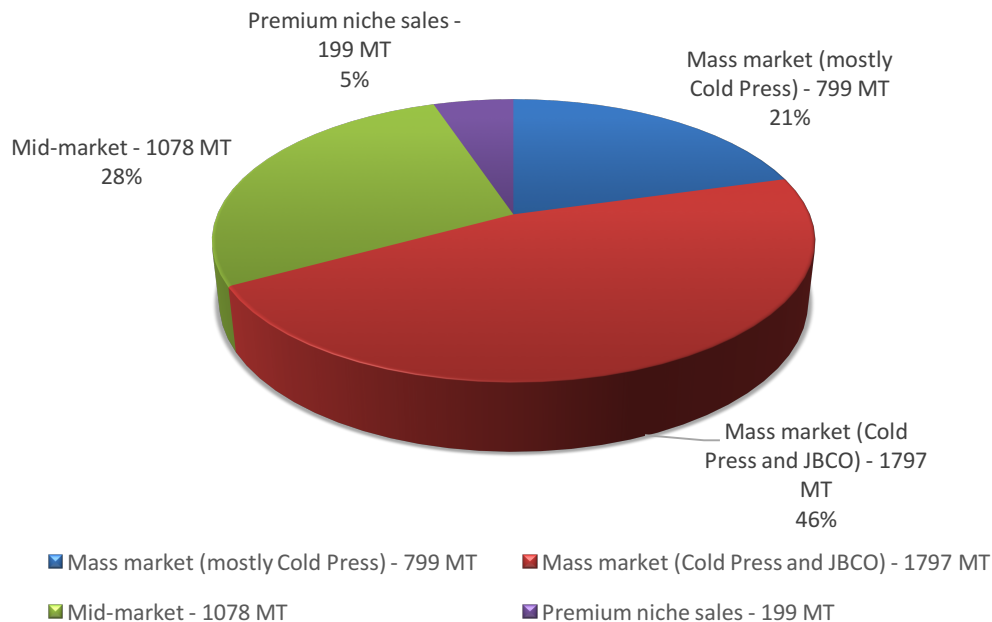


Normal purchase price per 4oz (125ml) bottle



The following pie chart demonstrates what percentage of sales is taken up by each pricing segment. It is thought that the majority of the \$0 - \$5 per bottle sales is taken up by mass market Cold Press oil.

Market segmentation (according to pricing)



Awareness of origin and JBCO

31% of consumers said they were aware of the origin of the castor oil whilst 69% were not aware. The consumers that were aware of the origin were then asked to specify where they thought the oil was from. Interestingly, Jamaica was the most popular response at 42%. This reinforces the point made earlier in this report that a significant volume of JBCO sales in the US market do not originate from Jamaica (an estimated 71%).

A key finding from the research is that **39% of consumers are aware of JBCO**. This is higher than expected and certainly represents a disproportionately high level of awareness in relation to the current supply levels of the industry. There are two noteworthy differences in the demographics of JBCO aware consumers versus general castor oil consumers:

- There is an even higher than average number of Caribbean and Black / African Americans within the 'JBCO aware' category. An increase from 7% - 16% for Caribbean consumers and an increase from 21% - 27% for Black / African Americans.
- There is a higher level of JBCO awareness amongst females than the general castor oil consumer category. An increase from 66% to 71%.

Willingness to pay more for JBCO

Out of the the consumers that responded as aware of JBCO, consumers were then asked if they would be willing to pay more for JBCO over other types of oil. **73% of these consumers said that they are willing to pay more for JBCO products over other types of oil.**

Consumers were then qualitatively asked 'why' they are willing to pay more for JBCO. The majority of respondents cited factors related to quality, but other categories included the environment and authentic process and origin. A series of quotes have been included within each category below.

Quality

- *"Because it really works and helps my hair to grow"*
- *"It helps your hair to grow longer and stronger"*
- *"It helps hair and skin growth"*
- *"Better structure for my hair"*

Environment

- *"Products coming from Jamaica are mostly organic & can be trusted"*
- *"Jamaican black castor oil is supposed to be better for the environment"*

Authentic process

- *"I like that it's made via traditional, indigenous methods. It is said to be more effective than regular castor oil"*

Authentic origin

- *"I am half Jamaican so the brand name resonates with me. Also, their products are mostly natural with no added ingredients that I am not aware of"*

These responses indicate that there is already a high perception of quality and reputation for JBCO products amongst US castor consumers. In addition, it also reveals that JBCO aware consumers already perceive the product to be 'inherently' organic, natural and environmentally friendly.

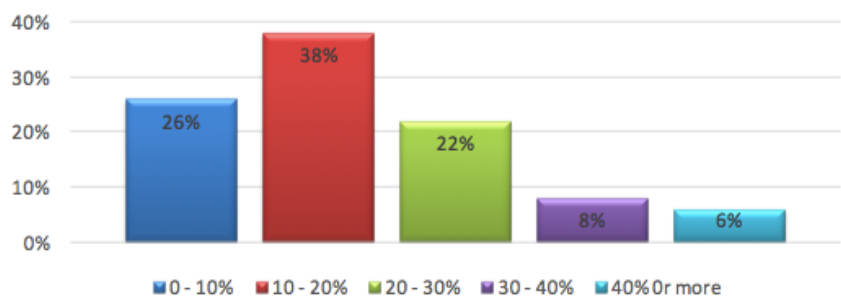
Consumers were then asked how much more they would be willing to pay for JBCO over other types of oil.

Consumers were given % ranges rather than \$ increases as options.

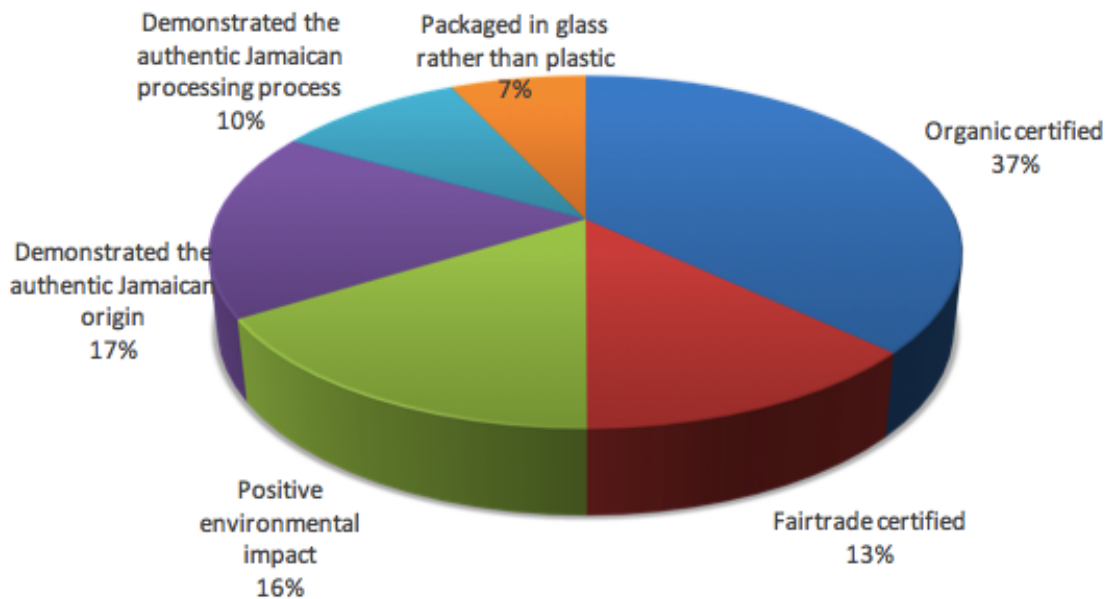
The most common response was a willingness to pay 10 – 20% more for JBCO over other types of oil.

The graph below illustrates how consumers responded to this question. Another noteworthy observation is that increases of between 0 – 30% in price represented 86% of consumers.

Potential additional pricing for JBCO products



To understand what will drive consumer's willingness to pay more for future castor oil sales, the research then explored a series of key drivers and asked consumers to rank their top three drivers to paying more in the future. The results of which are demonstrated in the pie chart below.



The highest scoring driver was organic certification, followed by authentic Jamaican origin, positive environmental impact and authentic Jamaican processing process.

From these findings, the following **two key themes have emerged as critical in order to maximize pricing and value on future sales**:

- **Sustainability** – combining organic certification and positive environmental impact generates a combined score of 53% of consumers willing to pay more for future purchases that can demonstrate ‘sustainability’. These two factors are inherently linked, and organic certification to some degree can be seen as a proxy to positive environmental impact. In addition, however, positive environmental impact also includes climate smart techniques, positioning on the ‘wild’ aspect of castor or not causing negative environmental impact through land clearing or degradation.
- **Authenticity** – combining authentic origin and processing processes generates a score of 27% of consumers willing to pay more for future purchases that can demonstrate ‘Authenticity’.

A comparison of different motivations and the level of potential additional pricing between JBCO aware and general castor oil consumers revealed that both types of consumer are motivated by the same factors with no statistically significant differences. The most common pricing increase is 10 – 20% and sustainability and authenticity themes remain the most important drivers. With no statistically significant difference between both types of consumer, this makes future positioning of the industry more straight forward as ‘sustainability’ and ‘authenticity’ differentiators will be applicable to both categories of consumer.

4. Strategic pillars and prioritization

The research from this assignment has concluded that demand for non-CGCO significantly outstrips supply, and specifically for JBCO. This gap between supply and demand in the US market alone is worth \$11.75m per annum.

At the same time, there is no consensus on what is or isn't JBCO, or a standard to safeguard and legally protect the industry. Furthermore, this is in an environment where an estimated 71% of all JBCO sales in the US market do not originate from the Jamaica.

The research has also revealed that 73% of castor oil consumers are willing to pay more for JBCO over other types of oil, especially when the industry can demonstrate and guarantee 'Authenticity' and 'Sustainability'. With the most common increase in willingness to pay more being between 10 – 20%, conservatively, the potential increase in US retail value is projected at \$3.06m, which would translate into approximately \$1.02m of added value to the Jamaican industry. This is only including added value potential from the US market alone, not other viable markets such as the EU and elsewhere.

Finally, the current split between non-CGCO being used as a stand alone individual product versus being used as an ingredient to other cosmetic products is 39%: 61% respectively. Therefore, there is a significant opportunity to capture additional value from the ingredient segment of the market if the industry can develop, export and market its own cosmetic brands that use castor (and other Jamaican products) as an ingredient.

As a result of the research and a series of consultations and workshops with different industry players, the following key strategic pillars have been developed and will be expanded upon throughout this report. **The strategic pillars have been broken down into 'Essential Pillars' and 'Longer Term Pillars'.**

Strategic pillars and prioritization		
	Essential Pillars	Longer Term Pillars
1. Production capacity	✓	
2. Regulatory standards and protection	✓	
3. Processing capacity	✓	
4. Positioning and promotions	✓	
5. Upgrading into manufacturing (of value-added/derivatives)		✓
6. Outsourced manufacturing		✓

The following definitions and rationale are applied to the 'Essential Pillars' and 'Longer Term Pillars'

categories.

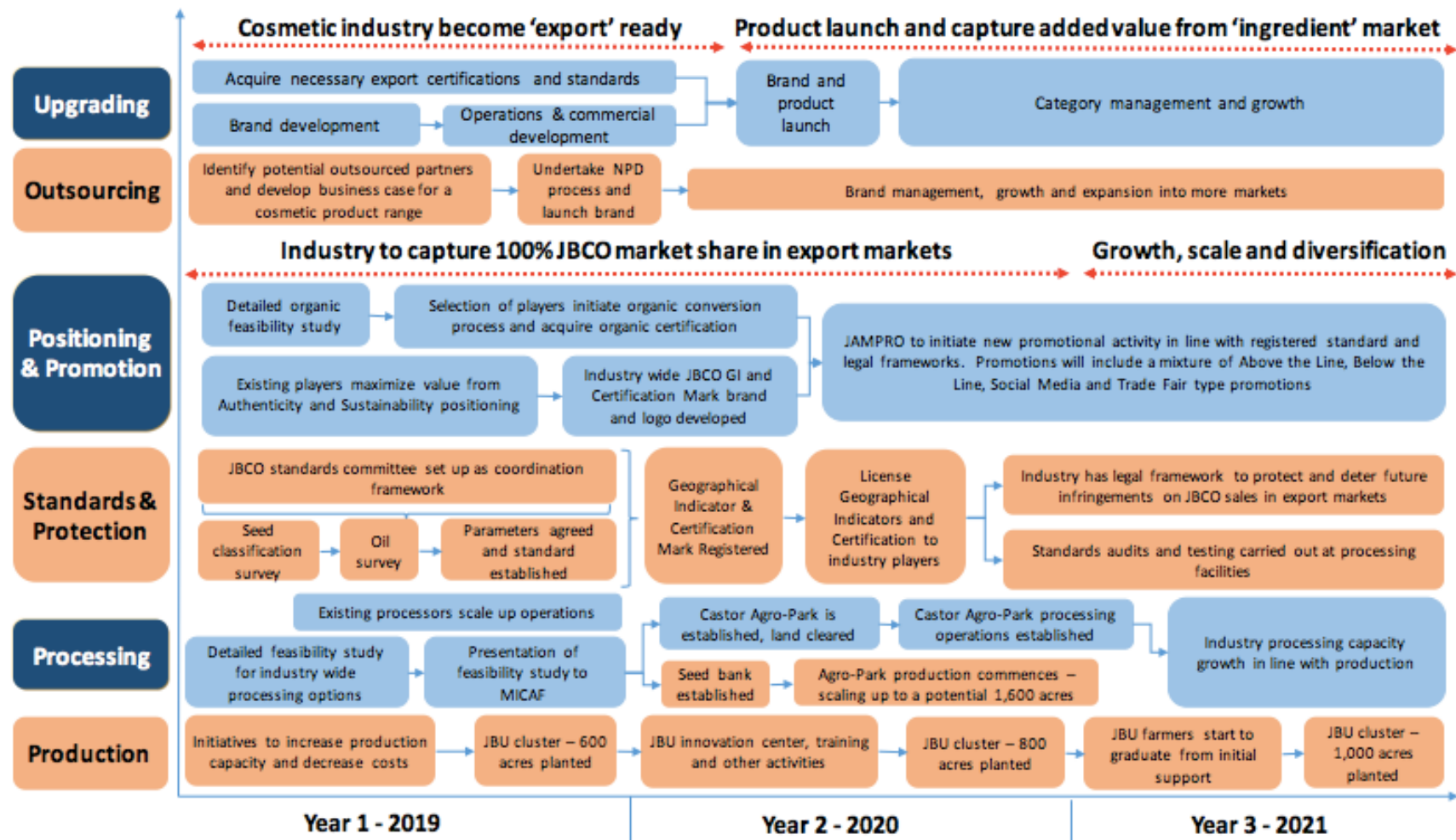
- **Essential Pillars** – these are strategic pillars that are essential for the industry to meet the demand for JBCO oil in export markets. Implementing these pillars will lead to the industry growing from its current size of \$4.87m to \$16.72m in the space of two years with a potential generated further added value of \$1.02m through effective positioning and promotions.
- **Longer Term Pillars** – are strategic pillars that will allow the industry to grow into and benefit from added value associated with end manufacturing of cosmetic products that use castor as an ingredient. This will increase sales for castor farmers as well as contribute to growth and employment in the wider economy.

Summary of costs and benefits of each strategic pillar

		BENEFITS		
		Low	Medium	High
COSTS	High			Processing capacity 'Upgrading' cosmetic investments
	Medium			Production capacity
	Low		Positioning and Promotions Outsourced cosmetic supply chains	Standards and protection

Red - Essential Pillars
Black – Longer term pillars

Strategic roadmap of options and timeframes



4.1 Production capacity

Problem statement

Demand for non-CGCO, and in particular JBCO, outstrips supply. This supply gap for JBCO represents \$11.75m in the US market alone. Jamaica is not producing enough castor to maximize the value out of current demand for non-CGCO and JBCO.

Opportunity

There is an immediate opportunity to increase the production of castor on a more formalized and commercial scale in order to, as a minimum, capture the JBCO market share in the US, and subsequently to realize further growth and value. **This is an 'ESSENTIAL PILLAR' of the strategy. It is an essential foundation for the industry to achieve its rapid growth potential.**

Challenges

Increasing production capacity of the industry presents the following unique challenges:

- **Seed supply** – as production capacity grows and farmers use harvested seeds to increase their acreage under production, there is a squeeze on seeds available for processors to convert into oil. This is particularly the case with varieties that are more popular than others due to different characteristics, such as yields or disease resistance for example.
- **Limited efficiencies of production** – there are a number of factors that constrain production capacity growth throughout the farming cycle, from the cost and poor access when clearing land through to the irregular harvesting patterns leading to challenges with labor management and costs. Other significant challenges include diseases such as grey mold and the potential for praedial larceny.
- **Capacity and mindset of castor farmers** – castor is a naturally occurring weed in Jamaica and is as such mostly cultivated using a 'hands off' approach. This subsequently constrains yields and overall volumes of seed available for sale and processing.
- **Limited commercially led Research and Development (R&D)** – to date there has only been limited commercially led R&D carried out in Jamaica within areas such as inputs, harvesting, post harvest handling and storage. Whilst there has been the development of a castor specific fertilizer called 'castolizer' and PCJ has carried out some research, otherwise activity in this space has been limited. This is most likely due to the fact that castor as a commercialized industry is nascent. The planned JBU cluster Castor Innovation Center will provide a platform and resources for further R&D for the cluster as well as the wider industry.
- **Limited application of international best practices and linkages** – there are several countries that currently grow castor on large commercial scale including Brazil and India which have a wealth of knowledge and lessons. However, the Jamaican industry has no institutional relationships with other best practice industries or international associations such as the International Castor Oil Association (ICOA).

Planned action

Compete Caribbean is supporting a cluster project lead by the JBU which is projected to put 1,000 acres of castor into production over the coming 3 years, engaging smallholder farmers across Jamaica. This project will also work on a range of activities that will support a decrease in production costs, at a farm level, in an attempt to further improve the competitiveness and comparative advantage of JBCO. This will include farmer training, improved R&D to reduce costs, improve production and harvesting efficiencies, wastage and increase yields (further details on the JBU funded cluster project can be obtained on request from Compete Caribbean).

Benefits

In order to meet the demand of JBCO in the US market requires 2.98m lbs of seeds to be converted into oil¹. The JBU cluster project is projected to reach a total production of 2.5m lbs of seed by the year 2021. If the proposed Castor Agro Park proceeds to implementation, then clearly the shortfall of seed supply will be met through this intervention.

The JBU Castor Bean cluster project is supported by Compete Caribbean and by the JBU cluster organizations themselves. The potential benefits of increasing the production capacity of the industry are high and will contribute to the industry being able to, as a minimum, capture the non-Jamaican JBCO market share, worth \$11.75m in the US market alone.

Roles and Responsibilities

The following organizations have a role in increasing the production capacity of the industry.

Roles and responsibilities to increase production capacity		
Organization	Role	Responsibilities
JBU	Cluster manager and agronomist to aggregate seed, and support smallholder castor farmers	<ul style="list-style-type: none"> To ensure that 1,000 acres of castor in in production by 2021. To effectively utilize R&D and knowledge to improve quality, yield rates and price competitiveness of production where possible.
Hi-Pro	Cluster partner to develop commercially led R&D into environmentally-friendly	To develop and test inputs that increase or yield, pests, fungus, etc in the most environmentally, socially and sustainable

¹ At a conversion rate of 1 gallon = 30 lbs of seed, requires to an equivalent increase in production of 2.98m lbs of seed per annum.

	castor production inputs	manner.
JBDC	Cluster training partner	<ul style="list-style-type: none"> To design and deliver training that supports farmers to formalize and commercialize their operations.
JCIA	Coordinate investment and implementation of the future Castor Agro Park	<ul style="list-style-type: none"> To develop a detailed investment case for the allocation of land for the castor agro park. To establish and provide a coordination role for the implementation of the agro park
MICAF	Key funding, policy and land allocation partner. Management of the Castor Agro Park	<ul style="list-style-type: none"> To assess the viability and potential impact of future production capacity funding. Allocate resources and land where required and appropriate.
RADA	Agronomy training partner	<ul style="list-style-type: none"> Provide specific agronomy training to farmers to support improved techniques, farm management, yields and post harvesting handling.
Bodles	Technical services and research partner	<ul style="list-style-type: none"> Ensure that the testing and other technical services necessary are provided and disseminated in the most cost-effective manner to ensure global competitiveness.
Newport Fersan	Key commercially led R&D partner	<ul style="list-style-type: none"> Continue to develop appropriate products that support the reduction in production costs, improvement in yields in a socially and environmentally responsible y.

Potential funding sources

Compete Caribbean and the JBU Castor Bean cluster partners have already approved financial support to finance most activities described above. Furthermore, with a detailed investment case developed for the Castor Agro Park, it is envisaged that a blend of both commercial investors, institutional investors (such as the WB, IFC, IDB) and public institutions (Ministry of Finance, MICAF) will invest in the establishment of the agro park. This is to be determined once a detailed investment case has been developed and presented to potential investors.

4.2 Regulatory Standards and protection framework

Problem statement

Despite significant international consumer awareness and demand, there is no formalized consensus within the industry on what constitutes JBCO. As a result, there is no standard that safeguards reputation, consistency and quality, as well as protects the industry from infringements of non-Jamaican JBCO. Meanwhile an estimated 71% of JBCO sales do not originate from Jamaica.

Opportunity

There is an immediate opportunity to capture the JBCO market share firstly in the US, and subsequently capture JBCO market share in other export markets. This opportunity in the US market alone is worth \$11.75m. **This is an 'ESSENTIAL PILLAR' of the strategy. It is an essential foundation for the industry to achieve its rapid growth potential.**

Challenges

Reaching consensus on what JBCO is, and subsequently establishing a standard and protection framework, presents the following unique challenges:

- **Multiple variables** – there are multiple potential variables that could help define what is and what isn't JBCO, including seed varieties, inputs, agricultural techniques, land, soil, topography, processing techniques, processing steps, length of time processing, temperature used when processing.
- **Defining parameters** – setting criteria and ranges for quality controlling the end oil before export should be set against the ICOA standards as a base standard, as this is the minimum standard that is requested by international buyers. However, the industry must collectively decide whether or not it wishes to go above and beyond the ICOA standards. The diagram below illustrates the ICOA castor oil standards.
- **Establishing 'grades' within the JBCO standard** – as with other agricultural commodity products, it is likely that the industry will develop an umbrella JBCO standard but with several grades of JBCO underneath it that can cater for, and protect, each of the different market segments (mass-market, mid-market and premium). For example, on the international coffee market there are premium grades, specialty grades and exchange grades. Reaching consensus and establishing parameters for each of these JBCO grades will require effective industry coordination.
- **Industry level coordination** – the establishment of the JCIA in 2018 has provided a critically important coordination function for the industry and has made progress on a number of levels including raising awareness of castor, attracting potential investment to the sector and working in the interests of, and representing, its members. However, a momentous challenge for the establishment of the standard and protection framework is the ability of the association to coordinate differing views and positions on how to define the parameters.

VALUES	AOCS TEST METHODS	ICOA CASTOR OIL SPECIFICATIONS (2003)
COLOR-LOVIBOND, 5/6" SCALE	Cc 13e-92	20 Y 2.0R MAX
HYDROXYL VALUE	Cd 13-60	160-168
VISCOSITY, STOKES	Tq 1a- 64	6.3-8.9
FREE FATTY ACIDS	Ca 5a-40	1.00% MAX
MOISTURE & VOLATILE	Ca 2c- 25	0.25% MAX
INSOLUBLE IMPURITIES	Ca 3a-46	0.02% MAX
RICINOLEIC ACID CONTENT	ISO 5508/9	85% MIN
APPEARANCE @ 25°C	CLEAR AND FREE OF SUSPENDED MATTER	
ODOR	SLIGHT, CHARACTERISTIC	
SOLUBILITY IN ALCOHOL @ 20°C	COMPLETE WITHOUT TURBIDITY IN TWO VOLUMES OF SPECIALLY DENATURATED ALCOHOL FORMULA 3A (95%)	
ADDITIONAL GENERAL SPECIFICATIONS		
SPECIFIC GRAVITY @ 25/25°C	Cc 10a-25	0.957-0.965
REFRACTIVE INDEX @ 25°C	Cc 7-25	1.476-1.479
IODINE VALUE	Cd 1d-92	83-88
SAPONIFICATION VALUE	Cd 3-25	175-185
UNSAAPONIFIABLE	Ca 6a-40	0.7% MAX
COLOR-GARDNER	Td 1a-64	3 MAX
ACID VALUE	Cd 3d-63	2 MAX

- **Enforcing protection is costly** – once the standard is developed with an associated certification mark and geographical indicator, legally enforcing any infringements will most likely prove too financially challenging for the industry to enforce, at least on a regular basis. As such, it is recommended that focus should be on promotional activities used as a deterrent to infringements.

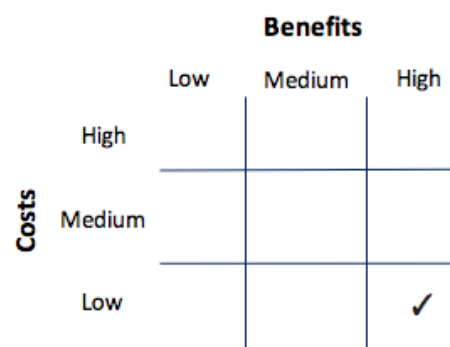
Planned action

As a next step from a Compete Caribbean Industry Workshop hosted by JAMPRO on 22nd January 2019, key industry stakeholders met on the 29th January to decide on the most appropriate way forward. The result of this meeting was that a multi-stakeholder and multi-faceted industry wide standards project is required in order to establish the standard and protection framework. The industry wide programme will have the following components and activities:

- 1. Conducting a Jamaica wide survey to identify the number of castor varieties present using:**
 - a. Phenotypic characterization (the traits, expressions and character of the castor plants).
 - b. Seed characterization (the traits, expressions and character of the castor seeds).
 - c. DNA fingerprinting allowing for future tracking and monitoring of seeds in the future.
- 2. Developing a plant conservation and seed bank**
 - a. Establishment of a germplasm collections.
 - b. Development of a seed bank.
- 3. Measuring and analyzing the differences in physiochemical properties of castor oils in Jamaica**
 - a. Physiochemical characterization of castor oils made from identified varieties in component 1 of the programme.
 - b. Physiochemical analysis between different types of processing, traditional, mechanized, semi-mechanized, different temperatures and timing spent processing.
- 4. Defining parameters and standardized processing guidance**
 - a. Defining the physiochemical parameters for what constitutes JBCO vs. other types of oils. Where possible these parameters should be mindful the current ICOA standard which is what buyers use as a minimum standard.
 - b. Creating a standardized guidance for processing of JBCO (including ranges of time and temperature, as well as guidance on handling procedures etc.)
- 5. Development of JBCO standards**
 - a. Develop draft standards for JBCO
 - b. Formation of a JBCO Standards Committee by the Bureau of Standards Jamaica (BSJ).
 - c. Submission of draft JBCO standard to the Committee
 - d. Acceptance, legal formalization and adoption of the JBCO standard
- 6. Using the JBCO standard to establish legal protection frameworks**
 - a. Obtaining a Geographical Indicator for JBCO (for appropriate markets such as the EU).
 - b. Obtaining a certification mark for JBCO in appropriate markets such as the US.

Costs and Benefits

The cost of implementing the industry wide standards project is estimated at \$323k (JMD\$ 44m) which for the purposes of this report is classified as a low cost (under \$350k). The potential benefits of increasing the production capacity of the industry are high and will contribute to, as a minimum, capturing the non-Jamaican JBCO market share, worth \$11.75m in the US market alone.



Roles and responsibilities

The following organizations have a role in designing and implementing an industry wide standards project.

Roles and responsibilities to establish standards and protection framework		
Organization	Role	Responsibilities
JCIA	Provide leadership, strategic direction and coordination to the programme	<ul style="list-style-type: none"> To coordinate all research and other activities from different entities involved in the project. Use research to form consensus and agreement on parameters for the standard and grading. Work with JIPO to ensure Certification Mark and Geographical Indicator are registered.
JBU	As cluster leaders for the Compete Caribbean funding, provide support that can benefit farmers and the industry standards	<ul style="list-style-type: none"> To provide input and access to research components of the project. To support the coordination role of the JCIA. To ensure financial support for the component 1 of the industry standards and report progress.
Mona Institute of Applied Sciences (UWI)	Lead the research for Component 1 of industry wide standards project	<ul style="list-style-type: none"> Design and implement the survey across Jamaica. Deliver results and evidence that is comprehensible and allows industry stakeholders to make key decisions. Provide inputs to components 3 – 4 of the project.

SRC	Lead the research for Component 3 of the industry wide standards project	<ul style="list-style-type: none"> Design and deliver the measurement of physiochemical parameters Deliver results and evidence that is comprehensible and allows industry stakeholders to make key decisions. Provide inputs to component 4 of the project.
MICAF	Key funding, policy and land allocation partner	<ul style="list-style-type: none"> Allocate resources and funding where required and appropriate.
Bodles	To establish and manage the seed bank	<ul style="list-style-type: none"> To use the research effective to ensure that the future seed supply is managed and regulated appropriately.
CARDI	To manage the process of germplasm collection	<ul style="list-style-type: none"> Collection of germplasm based on evidence carried out in Component 1 of the project. Coordination with Bodles and MICAF on the use of germplasm collection to establish a seed bank.
BSJ	Form and chair the JBCO standards committee	<ul style="list-style-type: none"> Draft and formalize the standard, its legal framework, acceptance and adoption.
JIPO	Register certification mark and Geographical Indicator (GI)	<ul style="list-style-type: none"> Take direction from JCIA to establish relevant legal protection frameworks Provide advice to industry stakeholders on the most effective approaches to managing legal protection.

Potential funding sources

As part of the JBU cluster project, Compete Caribbean will fund Component 1 of the industry wide standards project 'a Jamaica wide survey to understand castor varieties and characteristics'. The total budget available for this assignment from Compete Caribbean funding is \$52,500. The remaining budget for the industry wide standards project may come from the MICAF funded Agriculture Competitiveness Programme Bridging Project. Relevant stakeholders are in the process of submitting a proposal for funding through the PIMSEC.

Institutions such as BSJ, JCIA, SRC, Bodles could see new and increased revenue streams being generated through licensing of the certification mark and GI as well as carried out quality control and audit functions against the standard.

4.3 Processing capacity

Problem statement

Current processing capacity, consistency and efficiency is not sufficient to meet the projected increases in production capacity and ultimately consumer demand.

Opportunity

There is an immediate opportunity to increase the processing capacity of the industry to meet increases in production capacity and consumer demand. This will as a minimum allow the industry to capture the JBCO market share in the US as well as grow sales into other markets. Coordination between increases in production capacity and the establishment of a standard will greatly support a higher level of consistency of supply and quality, as well as improve processing efficiencies. **This is an 'ESSENTIAL PILLAR' strategic pillar. It is an essential foundation for the industry to achieve its rapid growth potential.**

Challenges

The following challenges exist within the processing capacity pillar of the industry strategy:

- **Capital investment** – scaling up the existing processing capacity to process at least another 99,501 gallons will require significant up front capital investment into processing facilities and machinery.
- **Investor confidence** – simultaneously, investor confidence in the castor industry is still relatively low as it is still a nascent industry in the process of commercialization there is a relatively high risk profile. Whilst this research and strategy could provide an evidence base demonstrating the size of the market and opportunities, it is recommended that JBDC provide technical assistance to business owners interested in preparing an investment or funding proposals to investors or banks. Business Support Organizations (BSOs) should also mobilize financial institutions and development banks to make access to credit more accessible to the industry stakeholders.
- **Reliability of seed supply** – as production capacity grows, so will the reliability of seed supply ready for processing. However, until the point when there is greater security of supply at the right time, at the right price, this is likely to present significant challenges to both investors and processors themselves. This will hopefully be overcome by the establishment of a seed bank however.

Planned action

The following options to scale up processing capacity have been analyzed as part of this research and strategic development. It is likely that a combination of all of the options will be implemented throughout the coming years. As an immediate next step however, it is recommended that a detailed investment feasibility study is carried out for option 2 below (Castor Agro Park) to model the commercial viability, investment costs, operational costs, revenue streams and return on investment rates. This feasibility study will support ongoing discussions between JCIA and MICAFA to allocate land and potential funding to the proposed Castor Agro Park.

Processing model	Advantages	Disadvantages
1. Scale up existing processors	<ul style="list-style-type: none"> • Quick-win approach – relative ease of adding new lines and press machinery to existing 	<ul style="list-style-type: none"> • Limited potential scale and constrained cash flow may limit the speed at which existing processors

	<p>facilities</p> <ul style="list-style-type: none"> Existing processing technical capacity and expertise 	<p>scale up (there is likely to be at least a 4-month cash flow gap between seed purchases and oil revenue).</p>
<p>2. Castor Agro Park (Processing Zone)</p>	<ul style="list-style-type: none"> Large scale opportunity to create standardized and consistent quality of supply Ability to consolidate orders to meet Full Container Load (FCL) orders. Individual processors may also decide to collaborate under one joint brand. Opportunity to embed support services to processors within the park such as quality audits, scientific testing, financial services and more. Significant SME growth opportunities for processors to establish themselves within the park. Opportunity for learning and knowledge exchange amongst processing entities located within the park. 	<ul style="list-style-type: none"> Medium term opportunity, with an estimated operational start up of mid-2020. Ownership and governance structure needs to be determined and agreed. Large scale up front capital investment required when investors still place castor as a nascent industry with relatively high risk profile.
<p>3. Castor processing cooperative</p>	<ul style="list-style-type: none"> Large scale opportunity to provide ownership and create shared value for farmers Opportunity to provide greater confidence in supply of seed as farmers are incentivized to supply to the cooperative. Ability to consolidate orders to meet Full Container Load (FCL) orders. Individual processors may also decide to collaborate under a joint brand. Opportunity to embed support 	<ul style="list-style-type: none"> Governance structures need to be well established otherwise farmers could lose confidence Communication channels between the cooperative and farmers need to be open and transparent in order for farmers to remain bought into the cooperative. Large scale up front capital investment required when investors still place castor as a nascent industry with relatively high risk profile.

	services to processors within the cooperative such as quality audits, scientific testing, financial services and more.	
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Costs and benefits

The cost of increasing the processing capacity of the industry, in line with production and ultimately consumer demand, will be high (over \$1m) and will require significant capital investment in machinery such as industrial scale shelling and press machines as well as roasting and boiling equipment. Other significant start up investment costs will be in the form of land, human resources, standard certifications and packaging. The potential benefits of increasing the processing capacity of the industry are high and will contribute to, as a minimum, capturing the non-Jamaican JBCO market share, worth \$11.75m in the US market alone. As such, this report places increasing processing capacity as a high cost but high reward strategic pillar.

		Benefits		
		Low	Medium	High
Costs	High			✓
	Medium			
	Low			

Roles and responsibilities

The following organizations have a role in increasing the processing capacity of the industry.

Roles and responsibilities to increasing processing capacity		
Organization	Role	Responsibilities
Existing private sector processing companies	Scale up existing processing facilities	<ul style="list-style-type: none"> Explore investment case of scaling up (analyzing costs, benefits, risks, timeframes and cash flow forecasting) Seek scale up investment or commercial finance is required. Implement company specific scale up strategy if commercially viable.
JCIA	Provide leadership and strategic direction to the design and implementation of the proposed Castor Agro Park	<ul style="list-style-type: none"> To undertake and manage a detailed investment feasibility study for the castor agro park. Present findings of feasibility study to MICAFA to secure land and funding where appropriate. Present findings of feasibility study to other potential institutional and commercial investors. Develop governance and operational

		<p>structure for the castor agro park, including mechanism for and tariff structure leasing to JCIA members.</p> <ul style="list-style-type: none"> • Coordinate the establishment of support service organizations at the agro park. • Provide support services and act as a knowledge resource for tenants of the agro park in all areas from standards, processing techniques, sales and marketing. • Coordinate knowledge exchange activities across the tenants at the agro park.
MICAF	Key funding, policy and land allocation partner Management of the Agro Park	<ul style="list-style-type: none"> • Allocate resources and funding where required and appropriate.
SRC	Lead physio-chemical testing organization at the castor agro park	<ul style="list-style-type: none"> • Provide rapid oil testing services on site within the agro park for tenants. • Oil testing will be carried out against the forthcoming JBCO standard. • Results and feedback given to processors in order to further improve the quality of oil against the JBCO standard.
Bodles	To establish and manage the seed bank	<ul style="list-style-type: none"> • To use the research effective to ensure that the future seed supply is managed and regulated appropriately.
BSJ	To oversee the implementation of the JBCO standard	<ul style="list-style-type: none"> • Provide JBCO standard audit services to tenants at the castor agro park. • Keep abreast of any modifications or changes required to the standard and its implementation.
JAMPRO	Identify foreign direct investors	<ul style="list-style-type: none"> • Provide information on the potential in Jamaica to potential cosmetic companies.

Potential funding sources

Increased processing capacity can be funded through foreign direct investments or investments from large manufacturing companies already operating in Jamaica. Without important investments from companies

interested in expanding their value chain, it is recommended that an investment feasibility study is conducted to provide independent evidence upon which potential investors can base future investment decisions. This evidence base will be necessary to hold investors hands from initial concept (which is where the Castor Agro Park is now), through to due diligence, investment structuring and mobilizing funds. The investment feasibility study could be presented to a range of different types of investors, including international institutional investors such as the WB, IFC and IDB, as well as government ministries such as Ministry of Finance and MICA. Other potential sources of funding may include the Development Bank of Jamaica. Commercial investors such as banks will also be approached once the feasibility study is complete.

There are significant revenue generating opportunities for the agro park model including leasing units and machinery to tenants, as well as the provision of other support services potentially available to tenants. There is also significant interest in the use of the mesquite plant (*Prosopis Juliflora*) which currently occupies a significant proportion of the land potentially available for the castor agro park and would have to be cleared in order to commence castor operations. When the land is cleared, the mesquite can be marketed as fuel in order to enhance BBQ flavoring, in both the domestic and export markets. Jamaica currently imports mesquite from the US.

4.4 Positioning and Promotions

Problem statement

53% of US consumers cite environmental 'sustainability' and 27% cite 'authenticity' as a key motivating factor to paying more for JBCO in the future. However, the industry does not current position or promote sales on these two factors, neither does it have certifications in place to back up any positioning.

Opportunity

The consumer research carried out has found that 73% of castor oil consumers are willing to pay more for JBCO over other types of oil, especially when the industry can demonstrate and guarantee 'Authenticity' and 'Sustainability'. Once production, processing and a standard are in place, the industry will be in a position to maximize sales revenue through added value positioning and promotions, targeted at demonstrating sustainability and authenticity to consumers. The fact that the majority of Cold Press castor oil products in export markets are organic certified, demonstrates that organic is a 'category norm' in the cosmetic castor oil market, and it reinforces that castor oil consumers are motivated by environmental sustainability.

With the most common increase in willingness to pay more being between 10 – 20%, conservatively, the potential increase in US retail value is projected at \$3.06m, which would translate into approximately \$1.02m of added value to the Jamaican industry. This is only including added value potential from the US market alone, not other viable markets such as the EU and elsewhere.

The research demonstrates 39% of consumers are aware of JBCO. Promotional activity will also provide an opportunity to raise awareness of JBCO and its benefits to the remaining 61% of consumers that are not currently aware of it. There were also no statistically significant differences between what motivates JBCO aware consumers vs. general castor consumers and their willingness to pay more. This means that positioning and promotional activity will not have to be distinguished based on awareness levels.

This is an 'ESSENTIAL PILLAR' strategic pillar. It is an essential foundation for the industry to achieve its rapid growth potential.

Planned action

As a quick win opportunity, existing private sector processors and exporters can immediately look to improve sales and marketing strategies to incorporate sustainability and authenticity positioning. This could include identifying different supply chain partners with more appropriate distributors or retailers for example, new brand development, re-labelling or exploring their own environmental standards certifications.

On an industry level, it is recommended that an organic certification feasibility scoping study is carried out. This study will build on previous discussions with certification bodies such as EcoCert and also the Jamaican Organic Agricultural Movement NGO, which specializes in supporting producers with organic conversion. The feasibility scoping study will provide detailed analysis on the costs associated with converting to various different organic certification marks.

The image to the right illustrates three example certifications that could be explored to enhance and 'guarantee' and environmentally sustainable positioning for future sales.



- **USDA Organic** – is a mainstream organic certification mark that is commonly known and accepted in the US market. This is the most commonly used mark on cold press castor oil in the US market. www.usda.gov/topics/organic
- **Eco Cert Cosmos Natural** – is a private and independent organic certification that specializes in cosmetic products and ingredients. This growing in popularity and is widely recognized amongst cosmetic manufacturers and buyers. www.cosmos-standard.org
- **Fair Wild** – is a relatively new certification that combines both fair treatment of producers as well as protecting the environment. Its foundation on 'wild' and naturally occurring plants lends itself well to the way that castor is naturally occurring in Jamaica. www.fairwild.org

Once the organic scoping study is complete, interested industry players will be in a position to adopt organic or fair wild conversion. The conversion period will depend on the existing state of the land and previous uses. From a marketing perspective, some certifications allow you to start marketing your product once conversion has started, whilst others will not allow this, such as USDA Organic.

In terms of authenticity positioning, the development of JBCO standard and legal protection framework will provide the basis for the development of an industry wide authenticity brand logo that can be used on both individual castor oil products as well as when used as an ingredient. The logo could be licensed to processors that meet the JBCO standard and criteria set out in the GI and Certification Mark.



Promotional activity for both sustainability and authenticity will take place at both a firm level and an industry wide level. At a firm level, promotional activity will include in-store activations, testers, websites, social media and co-promotions with cosmetic manufacturers. On an industry level, JCIA and JAMPRO continue and strengthen existing promotional activities such as trade fairs and facilitation of new investors and buyers. It is also recommended that a series of below the line promotional activities are carried out in end markets using social media channels such as Facebook, Instagram and twitter. These industry level promotional

activities will help to deter future infringements of non-authentic JBCO products as well as raise awareness levels of JBCO. Finally, industry wide promotional activities could gain further visibility if an internationally known Jamaican celebrity acted as a JBCO brand ambassador.

Costs and benefits

There will be varying costs for different aspects of this strategic pillar. For example, the cost of organic conversion to demonstrate future sustainability positioning will depend on multiple variables such as number of acres under conversion, previous land use, which certification mark is deemed the most suitable, which certifying body undertakes the advisory and audit services. It is estimated that organic conversion on a commercial scale within the industry will constitute a low cost (under \$350k). Authenticity positioning will be built on the costs of developing a JBCO standard and associated GI and certification mark. Therefore, the remaining cost will be to develop an industry wide authenticity brand logo and visual identity manual to guide producers and processors how to use the brand. This will also be a low cost (under \$350k).

Promotional costs at a firm level will be dependent on the level of promotional activity the firm wishes to undertake, mindful that many firms will already have allocated budget lines for promotional activity. On an industry level, additional social media campaigns and engaging a celebrity JBCO brand ambassador will be low cost.

Potential benefits of implementing positioning and promotional activities are classified as medium (\$1m - \$10m). With the most common increase in willingness to pay more being between 10 – 20%, conservatively, the potential increase in US retail value is projected at \$3.06m, which would translate into approximately \$1.02m of added value to the Jamaican industry. This is only including added value potential from the US market alone, not other viable markets such as the EU and elsewhere.

		Benefits		
		Low	Medium	High
Costs	High			
	Medium			
	Low		✓	

Roles and responsibilities

The following organizations have a role in positioning and promotional activity within the industry.

Roles and responsibilities to positioning and promotions		
Organization	Role	Responsibilities
Existing private sector processing companies	Develop firm level strategies to maximize value from sustainability and authenticity	<ul style="list-style-type: none"> To implement firm level positioning and promotional activity that is in line with the industry's vision Identify new market channels that maximize sustainability and authenticity positioning.
JAMPRO	To develop and manage a structured and targeted industry wide promotional	<ul style="list-style-type: none"> To establish, develop and regularly update below the line promotional activities on social media functions.

	strategy and campaigns	<ul style="list-style-type: none"> To work with JCIA to develop and finalize all messaging and communications used in promotions. To continue to attend and present at international trade fairs. To engage a celebrity JBCO brand ambassador to support industry wide promotions.
JCIA	Support members to implement improved positioning and promotional activities	<ul style="list-style-type: none"> To develop an authenticity brand logo to reinforce the standard, GI and certification mark. To support JAMPRO with the design and implementation of the industry wide promotional strategy. To manage the organic conversion feasibility study and advise members on the most suitable approach to their operations.
MICAF	Key funding, policy and land allocation partner	<ul style="list-style-type: none"> Allocate resources and funding where required and appropriate.

Potential funding sources

Individual companies will invest in their own positioning and promotional activities. If finance is required to provide cash flow for brand design, re-labelling and various promotional activities then commercial finance may be an option or small operational grants may be available from matching grant schemes such as Jamaican Business Fund (JBF).

It is recommended that as a starting point for industry level sustainability positioning, donor funds are utilized to undertake an organic conversion scoping study to model different costs, benefits and approaches to a range of potential certification marks. This analysis can then be used by industry organizations such as JCIA to advise on the appropriateness of organic conversion to different producers and members. The research can be used as evidence to demonstrate commercial viability and potential return on investment when becoming organically certified. Potential investors in organic conversion might include land owners, farmers, processors investing in reliable farmers and commercial investors.

Industry wide promotional activities carried out by JAMPRO will continue to be supported by JAMPRO. In the event that additional budget is required to scale up existing activities and establish new social media campaigns and celebrity ambassadors, then it is expected that MICAF will buy into the rationale and extend existing funding.

4.5 Upgrading into export added value cosmetic manufacturing

Problem statement

There is a limited number of export ready cosmetic manufacturing operations in Jamaica. This means that the added value from the ingredient market (61% of the US market for example) is being captured by overseas cosmetic manufacturing businesses.

Opportunity

There is a clear commercial opportunity for the Jamaican cosmetic manufacturing industry to 'upgrade' within the value chain and become more export oriented, sourcing local ingredients that present a comparative advantage, such as castor oil. 61% of castor sales are sold to cosmetic manufacturing companies in the US which subsequently capture added value. Whilst there are many companies in Jamaica that are currently sourcing and using castor as a primary ingredient, only a small number are exporting finished castor based cosmetic products. Upgrading existing cosmetic manufacturing companies will allow the industry to capture this value in Jamaican, whilst at the same time providing another potential offtake channel for castor producers. There could also be opportunities to bring a segment of the added value back to Jamaica by promoting Jamaica as an investment destination for international cosmetic manufacturing companies to establish manufacturing facilities 'closer to ingredient source'. Both options would prove transformational to the economy as a whole, creating jobs and additional income opportunities.

This is a 'Longer Term Pillar' strategic pillar that will lead to significant growth and employment opportunities for the castor industry and wider cosmetic industry. It is not however essential for the immediate growth and structuring of the industry, however it could be a significant contributor.

Planned action

The following activities are required in order to develop export ready cosmetic brands and supply chains.

- **Export ready accreditations and certifications** – depending on the end market, there are stringent standards and certifications that will need to be explored and adhered to in order to commence exports. For example, in the US market, there are a series of acts and considerations that need to be understood in detail and adhered to, such as:

- Child-resistant packaging design act
- The poison prevention packaging act
- Federal Hazardous Substances Act (FHSA)
- The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)
- National Volatile Organic Compound Emission Standards for Consumer Products

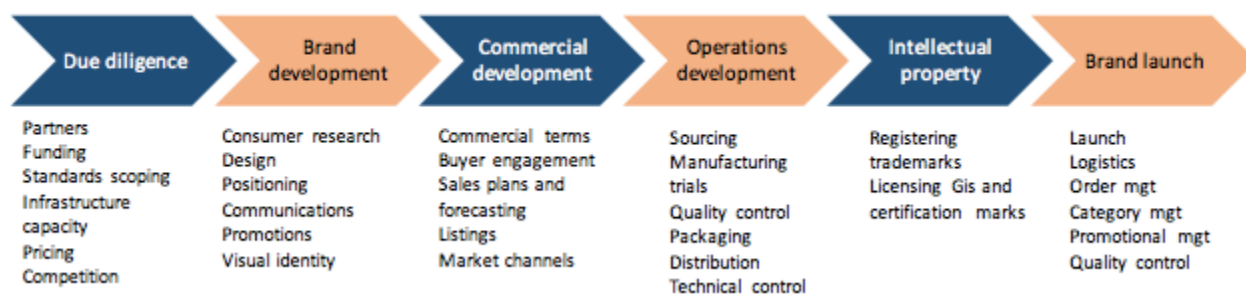
ISO 10130	Cosmetics — Analytical methods — Nitrosamines: Detection and determination of N-nitrosodiethanolamine (NDELA) in cosmetics by HPLC, post-column photolysis and derivatization
ISO 11930	Cosmetics — Microbiology — Evaluation of the antimicrobial protection of a cosmetic product
ISO 12787	Cosmetics — Analytical methods — Validation criteria for analytical results using chromatographic techniques
ISO/TR 14735	Cosmetics — Analytical methods — Nitrosamines: Technical guidance document for minimizing and determining N-nitrosamines in cosmetics
ISO 15819	Cosmetics — Analytical methods — Nitrosamines: Detection and determination of N-nitrosodiethanolamine (NDELA) in cosmetics by HPLC-MS-MS
ISO 16128-1	Guidelines on technical definitions and criteria for natural and organic cosmetic ingredients and products — Part 1: Definitions for ingredients
ISO 16212	Cosmetics — Microbiology — Enumeration of yeast and mould
ISO/TR 17276	Cosmetics — Analytical approach for screening and quantification methods for heavy metals in cosmetics
ISO 17516	Cosmetics — Microbiology — Microbiological limits
ISO 18415	Cosmetics — Microbiology — Detection of specified and non-specified microorganisms
ISO 18416	Cosmetics — Microbiology — Detection of Candida albicans
ISO/TR 19838	Microbiology — Cosmetics — Guidelines for the application of ISO standards on Cosmetic Microbiology
ISO 21148	Cosmetics — Microbiology — General instructions for microbiological examination

A series of International Standards Organization (ISO) standards that are relevant to cosmetic products are illustrated above and will need to be explored and adhered to in some instances².

In addition, British Retail Consortium (BRC) is a standard that is growing in popularity with cosmetic buyers and includes a range of safety considerations such as metal detection.

- **Investment in facilities and process** – manufacturing companies will likely need to invest in upgrading existing facilities with new lines and machinery in order to process the required volume at the right quality specifications and in accordance with relevant acts and standards set out above.
- **New product development process** – cosmetic manufacturing companies will need to go through a structured New Product Development (NPD) process to develop an export ready product range and brand. The NPD process includes a series of steps in order to reduce the risk associated with launching a new brand in a new market. The diagram below sets out the key steps, from brand development through to IP registration and launch.

² <https://nvlpubs.nist.gov/nistpubs/ir/2017/NIST.IR.8178.pdf>



- **Investment partnerships** – through organizations like JAMPRO the industry can work to promote Jamaica as a destination for international cosmetic companies to establish manufacturing operations in Jamaican ‘close to the source’ of the ingredients. This could be particularly attractive to international cosmetic if there is a critical mass of potential ingredients in Jamaican, in addition to castor. Furthermore, the government could work to improve the business environment for potential investors in this key sector by providing incentive structures such as concessions or tax relief in return for establishing operations and therefore providing economic opportunities for large numbers of producers in Jamaica.

Costs and benefits

The cost of upgrading the cosmetic industry to capture added value from the castor ingredient market segment is likely to be high (over \$1m) and will require significant capital investment in machinery, standards, NPD, human resources and packaging. The potential benefits of a more developed cosmetic manufacturing industry in Jamaica with an internationally recognized cosmetic product range sourcing Jamaican ingredients will create significant value for the economy. It will also have significant benefits in terms of direct employment, as well as for ingredient producers, such as castor farmers.

		Benefits		
		Low	Medium	High
Costs	High			✓
	Medium			
	Low			

Roles and responsibilities

The following organizations each have a role to play in scaling up of domestic cosmetic operations to capture more added value from cosmetic retail sales.

Roles and responsibilities to upgrade into export value add cosmetics manufacturing		
Organization	Role	Responsibilities
Existing private sector cosmetic companies	Develop and grow cosmetic export sales that use Jamaican ingredients such as castor.	<ul style="list-style-type: none"> • Scope out which standards are pre-requisite for the intended export markets. • Develop internal investment cases for decision making on different approaches to upgrading. • Implement a structured NPD process for new product ranges in export markets.

		<ul style="list-style-type: none"> Build new supply chains with international distribution and retail partners.
JAMPRO	Promote investment opportunities within the Jamaican cosmetic industry. Identify more export opportunities for cosmetics producers	<ul style="list-style-type: none"> Continue to promote Jamaica as an investment destination for international cosmetic companies. Work with relevant government agencies to explore incentive structures that could be implemented to catalyze further investment into added value cosmetic manufacturing for export markets.
JMEA	Facilitate linkages between cosmetic manufacturing companies, investors and standards bodies and other relevant supply chain players.	<ul style="list-style-type: none"> Identify a series of JMEA members that could be interested in upgrading to export sales. Work with relevant members to demonstrate the business case for upgrading into export sales. Facilitate linkages between interested members and relevant support organizations and commercial supply chain partners.
JCIA	Facilitate linkages between castor producers and relevant cosmetic manufacturing companies.	<ul style="list-style-type: none"> Work with JMEA to understand potential volume and quality specification required by cosmetic manufacturers. Match up relevant castor processors and suppliers to cosmetic manufacturing companies. Ensure that JBCO positioning and promotional messaging is passed on to cosmetic manufacturing and is consistent.
BSJ	Provide guidance and advice on necessary standards for export markets.	<ul style="list-style-type: none"> Work with JMEA to develop guidance on necessary standards for export markets. Provide ad-hoc advice and information to cosmetic companies exploring different potential standards.

Potential funding sources

Funding for upgrading into added value cosmetic export sales is likely to come from either internal investment into new standards, facilities and the NPD process. If the company has developed a detailed investment case that demonstrates commercial viability, then a series of commercial and institutional investors can be approached. The potential large size of the investment required is likely to lend itself well to larger institutional investors such as the WB, IFC and IDB. JMEA and JAMPRO may also support manufacturing companies by facilitating links with potential investors.

4.6 Building outsourced cosmetic supply chains

Problem statement

There is a limited number of export ready cosmetic manufacturing operations in Jamaica. This means that the added value from the ingredient market (61% of the US market for example) is being captured by overseas cosmetic manufacturing businesses.

Opportunity

There is a quick win and lower cost opportunity to capture a significant level of value from the ingredient market segment by developing a series of outsourced supply chains which distribute a Jamaican owned cosmetic brand into export markets. This is a model that is used by some of the largest corporates in the world such as Coca Cola and Apple, whereby the intellectual property is owned in the home country but manufacturing and packaging is outsourced to different companies in the end market, closer to the consumers, that already have all the pre-requisite standards and certifications for sales in their market. The advantage of this model is that upfront investment costs associated with upgrading domestic cosmetic companies to export finished products to end consumers is lowered. However, this model will capture less overall retail value and is perhaps less of a long term strategy for the industry.

This is a 'Longer Term Pillar' strategic pillar that will lead to significant growth and employment opportunities for the cosmetic industry and wider cosmetic industry. It is not however essential for the immediate growth and structuring of the industry.

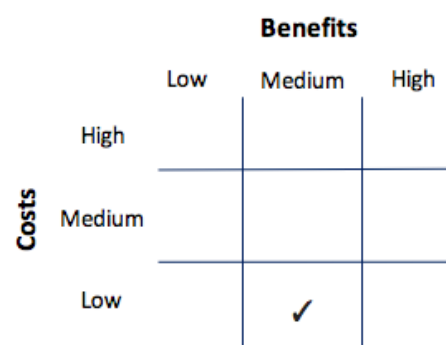
Planned action

The following actions are recommended in order to establish added value outsourced cosmetic supply chains.

- **Scope commercial viability of different markets** – carry out analysis on different product ranges in different end markets, end pricing, volumes, specific quality specifications, partner fees and commission rates, potential retail payment terms and cash flow requirements.
- **Commercially engage outsourced supply chain partners** – identify suitable toll manufacturers, packaging, packing and distribution companies. Develop service level agreements with each of them with specific deliverables, lead times and quality standards and specifications.
- **Carry out compressed NPD process** – a compressed NPD process is required without significant operational piloting and considerations. However, the compressed NPD process is required to develop the ingredient compositions and 'recipes' of the end product range. In addition, it is critical the Jamaican company develop a suitable brand that is consumer led and based on research in the end markets.

Costs and benefits

The costs to establish outsourced cosmetic supply chains within export markets is estimated as low (less than \$350k). Most of the cost items for this strategic pillar are time based rather than in-cash investments, including research to scope out viability and consumer research to support brand development. The benefits are estimated as medium, depending on how much traction the brand generates in end markets. The value generated will of course still be slightly lower than exporting finished cosmetic products directly from Jamaica to the end market. As such, this report categorizes this strategic pillar as a low cost, medium benefit opportunity.



Roles and responsibilities

The following organizations have a role to play in the potential development of outsourced cosmetic supply chains in export markets.

Roles and responsibilities to building outsourced supply chains		
Organization	Role	Responsibilities
Existing private sector cosmetic companies	Develop and grow cosmetic export sales that use Jamaican ingredients such as castor.	<ul style="list-style-type: none"> Scope out commercial viability of potential supply chains. Build new supply chains with suitable partners. Follow a structured and compressed NPD process to develop product range and launch brand.
JMEA	Facilitate linkages between cosmetic manufacturing companies, investors and standards bodies and other relevant supply chain players.	<ul style="list-style-type: none"> Identify a series of JMEA members that could be interested in upgrading to export sales. Work with relevant members to demonstrate the business case for outsourced supply chains in export markets. Facilitate linkages between interested members and relevant support organizations and commercial supply chain partners.
JCIA	Facilitate linkages between castor producers and relevant cosmetic manufacturing	<ul style="list-style-type: none"> Work with JMEA to understand potential volume and quality specification required by cosmetic manufacturers.

	companies.	<ul style="list-style-type: none"> • Match up relevant castor processors and suppliers to cosmetic manufacturing companies. • Ensure that JBCO positioning and promotional messaging is passed on to cosmetic manufacturing and is consistent.
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Potential sources of funding

This strategic pillar can be funded directly by internal investment from cosmetic companies in Jamaica. Donor funding could be useful however to carry out initial scoping viability that provide evidence and support investment decision making within cosmetic companies. If additional working capital is required to cash flow the increased payment terms of an outsourced supply chain, the cosmetic company could seek a commercial loan secured against an order agreement from the retailer or end buyer.

