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# Horizon Limited: Unraveling the Financial Performance of Nature Based Agribusiness Products

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## **INTRODUCTION:**

On 5 October 2011, Bernard Muchiri, the CEO and founder member of Horizon Limited, a commercial company with business interest in agribusiness, and renewable energy, was fixated on the financials of the company which on his new iPad, and for the third time in as many days, he pondered on what had gone wrong. The management reports from the Production Manager, Mr. Cosmos Ochieng, consistently showed that although the current operations in each of its five oil products; namely, biodiesel oils from croton seed, cape chestnut oils, canola oils, sunflower oils and castor oils were generating profits, the profits had not reached the projected returns on the capital investment. Diversification had borne some fruit but the challenge of generating the required rate of return to be commercially viable was real. He considered: increasing investment in assets to grow Horizon's production capacity base; diversifying further into additional products (mainly from the waste cakes generated after production of the oils); or developing new products altogether. The company faced multiple challenges on expansion and how to finance the expansions. Besides the decision issues on the product front, Bernard was also considering several financing options: internal funding or look for a strategic partners.

## **COMPAY BACKGROUND:**

Horizon Ltd was started in 2007 by a civil society organization (CSO) called Help Self Help Centre (HSHC) which was founded in 1993 by five individuals working in government, NGOs and businesses. The founders formed HSHC as a service delivery organization, providing marketing service to farmers of at the local level. . After successfully providing such marketing services for close to fourteen years, HSHC, embarked on establishing a commercially based company, Horizon Ltd. The company was set up to focus on three program areas: agribusiness, nature & renewable enterprises and climatic change based enterprises.

HSHC partnered with Solarix, a Dutch company to assist in procuring the technology for biodiesel production and to assist in financing the growth of Horizon Ltd. Solarix was to receive

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Mwanashehe S Mohamed, Assistant Professor prepared this case with the assistance of Professor Barbara Jamieson of Edinburgh Business School, Heriot Watt University U.K. and Professor Leif M. Sjoblom of IMD Business School, Switzerland, as the basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative situation. United States International University (USIU) acknowledges the support of Global Business School Network (GBSN) and financial support from Bill & Melinda Gates Foundation (BMGF) in the preparation of this case study.

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51% of the shares of Horizon Ltd, HSHC 30 % and the remaining 19% was to be split among three other passive partners. This arrangement was discussed and agreed upon but not formalized. Horizon Ltd. had hoped that Solarix would access external funding from the Dutch Government (specifically to win an initial investment of 1.5 million Euros by accessing Public Sector Investment Program funding (PSI)), similar to Inter Church Cooperation Organisation for Development (ICCO) of Netherlands as funding partner to HSHC. However, this expectation was not realized as the partnership was a gentleman's agreement and could therefore not qualify.

Instead Horizon Ltd. received a loan from Solarix and HSHC to purchase production machineries and working capital. In addition, Janneke Beemster, a Dutch volunteer from VSO joined HSHC in November 2007 and assisted in the development of Horizon's organizational structure and systems and processes. VSO also, trained for Horizon in business development skills.

Horizon Limited (HL), started as a bio-diesel production company, the first to harvest business potential from oilseed in Kenya), and forest-based essential oils (cape chestnut and canola oil and sunflower and castor seed oils). The company used a business model that was aimed at maximizing returns while motivating local farmers to conserve the forest. One local farmer stated, "Money from the sale of the forest seeds we collect brings breakfast to our table". HL had also established a memorandum of understanding (MOU) with Kenya Forestry to allow local farmers to access and collect seeds from the forests to supply to Horizon.

In 2008 the company realized that all three products, (biodiesel, canola and cape chestnut oils), had a strong potential that justified further investment in the business opportunity, (See Tables 6 to 8 for financial statements).

## **COMPANY'S PRODUCTS AND VALUE-ADDITION PROCESS:**

### **BIODIESEL PRODUCT: CROTON OIL**

The feedstock for production of biodiesel is fat from croton, and castor seeds. The seeds were collected by smallholder farmers from their farms and forest and sold to Horizon Ltd at competitive prices. The seed is first cleaned and then pre-heated in a conditioner to allow the seeds to be flaked in preparation for further cooking. The flaking is to rupture the oil cells. It eases the seeds for the next steps of the crushing process of solvent extraction. The flaked seed is then fed into a cooker where the seeds' moisture levels are reduced and temperature increased in preparation for pressing. Inside the press, a specially designed worm configuration compresses the seeds, allowing the controlled release of the oil. The oil is drained from the bottom of the press while the cake by-product is conveyed from the discharge end of the press. The crude oil at this point contains solids and moisture that are removed using a vibrating screen or a horizontal centrifuge. Cake by-product from the discharge end of the press goes through a cake breaker and cake cooler sold as animal feed or fertilizer. Inspection & Quality Checks are done and then the biodiesel oil is sold direct at factory or through local petrol stations in Naro Moru. By 2011 Horizon Ltd was producing between 600 and 1,000 liters of biofuel daily. (See Exhibit 1)

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In 2011, a litre of biodiesel fuel was priced Ksh 10 lower than that of petrol –diesel retailing at KSh 120 in Nairobi. “I believe biofuel is the only solution to the country’s fuel crisis,” said Cosmas Ochieng, the Production Manager of Horizon Ltd “The government should open up and support those venturing into the production of biofuel to avert a fuel crisis.” He added. Production of biodiesel fuel had made farmers in Naro Moru to abandon what they cultivated and turn to the new crops for the precious seeds, said Ochieng. “Farmers are making good money here,” he said on phone from his Naro Moru office. “Many of the farmers are now planning to increase the acreage under these forest plants which initially were seen as useless trees”. He indicated that the group (Horizon Ltd and HSHC) was seeking partnerships with well-wishers to expand its fuel production. “We are planning to go large scale but we have been incapacitated by lack of materials.” Further, to go large scale the company required modern machines to replace the old ones. “We also think of paying our farmers well. Currently, a kilo of the seeds with shells costs Sh6. But as the pump prices continue being volatile and the country’s efforts to explore oil continue to hit the wall, time will only tell if Kenya will invest heavily on biofuel because that could perhaps be the solution to Kenya’s petrol fuel crisis”.

### **Viability of biodiesel value chain**

Biodiesel production is considered to be economically viable when it is price competitive with petroleum products. The cost of biodiesel production is greatly affected by the value-addition cost of feedstock production process.

### **Price competitiveness of biodiesel**

In order to estimate the price of biodiesel in Kenya, the price of alternative vegetable oil has to be considered. The average landed price from 1996 to 2005 of vegetable oil was US\$0.51 per litre (Kshs.35.97). Depending on the size of the facility, the cost of feedstock on average consists of 65-78% of overall biodiesel production expense including feedstock, chemicals, energy, labour, depreciation, overhead and maintenance. Applying the cost of imported crude palm oil in 2005, US\$0.46 (Kshs.35) per litre as feedstock, the total production cost of biodiesel derived from palm oil is calculated to be US\$0.70-0.89 (Kshs.53-67).

The biodiesel purchase policy of the Ministry of Petroleum and Natural Gas is that oil companies should purchase biodiesel for US\$0.55 (KSh.55) per litre. Kenya exports oil seeds as well, and the average export price of major oil seeds such as castor, sesame and sunflowers in 2005 was US\$0.51(Kshs.39) per kg<sup>3</sup>.

In Kenya where no government intervention exists, the ex-factory price of biodiesel had to be competitive with the landed price of petroleum diesel oil in order for oil companies to purchase biodiesel as an alternative to petroleum diesel oil. If the price of petroleum products increased without corresponding increases in the price of vegetable oils, biodiesel will become more and more price competitive with petroleum diesel.

### **Alternative value chains and potential impacts**

The different value chain channels based on 2010 production consisted of four stages:

- production of seeds (farming), seeds which are collected through local collection systems;
  - oil extraction (first processing), in small oil pressing and processing facilities
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- trans esterification (second processing),;
- Marketing to end-users, and distribution of products that connect each stage.

The actors in the value chain include local farmers, domestic enterprises, and end-users. Horizon is price taker for bio diesel (price per litre) - KSh 5 below price of conventional diesel. But there was an opportunity for higher prices for chestnut oil (medicinal properties, relatively limited supply, etc). See Table 1 for production costs of Croton oil which is the base oil for bio-diesel production.

## **CAPE CHESTNUT**

The Cape Chestnut oil, otherwise known as *Yangu oil*, is popular oil in African skin care. Its inherent ultra violet protection and its high content of essential fatty acids and antioxidants and mild smell makes it a base for natural cosmetics.

### ***Stages in production of Cape Chestnut:***

The processing procedures and their briefs are provided below:

Selling Price of cape chestnut oil is K.Shs.300/- per litre at the factory and by order-based from specific cosmetic producers such as Arbor Oil and Abba and Yangu Oils. Supplying ability is 5,000 litres per month.

## **CANOLA OIL**

**Canola oil is made from canola seed.** Canola oil is pressed from tiny canola seeds produced by beautiful yellow flowering plants of the Brassica family. Cabbages and cauliflower are also part of the same botanical family. Canola was bred naturally from its parent rapeseed in the early 1970s. Consumers recognize canola oil for its nutritional attributes as it contains the lowest level of saturated fatty acids of any vegetable oil. It is high in monounsaturated fatty acids, which have been shown to reduce blood cholesterol levels, and has moderate levels of essential polyunsaturated fatty acids. It is also a rich source of vitamin E. Like all vegetable oils, canola oil is cholesterol- free.

### **The Canola Processing:**

#### **The Canola Oil Extraction:**

**Step 1:** The first stage in processing canola is to roll or flake the seed. This ruptures cells and makes the oil easier to extract, "extraction and sifting stage". 2.2 kgs -4 kgs of seeds produce 1 litre of oil.

**Step 2:** Next the flaked or rolled seeds are cooked and subjected to a mild pressing process which removes some of the oil and compresses the seeds into large chunks called "cake - fragments"

**Step 3:** The cake fragments undergo further processing to remove most of the remaining oil. The oil extracted during each step is combined. The oil is then subjected to processing according to the end product requirements. Different treatments are used to process salad oils, margarines, and shortenings.

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**Step 4:** Analysis: for Kenya Bureau of Standard (KBS) marks.

**Step 5:** Packaging, labeling and finally sealing

It takes 8 hours to produce 480-500 liters as per machine capacity.

See Table 3 on production costs for canola oil.

### **SUNFLOWER AND CASTOR OILS**

These oils blend with other oils to produce the three main products; namely, biodiesel, chestnut oil and Canola oil. .

See Table 4 on production costs for sunflower oil.

See Table 5 on production costs for castor oil.

### **WILD HARVESTED PLANT OILS AND THEIR BUSINESS ENVIRONMENT**

Environmental problems associated with sunflower/croton production: lack of rainfall; the problem of black worms in drought conditions when there is “a lot of heat in the ground”; and finally the blight of seed eating birds. The impact of these external factors on production is substantial. In normal conditions, 1 acre produces 1,000kg of seed. If there is no rainfall 1 acre produces 300kg of seed. On the other hand it is a fact that nature-based enterprises in chestnut oil production are less vulnerable to external/ climatic factors.

**Leading Economic Indicators:** Inflation is above 12% by October 2011.

**Biodiesel:** Total consumption of petroleum products increased by 23.5 per cent from 259.6 thousand MT in February 2011 to 320.6 thousand MT in March 2011.

Domestic oil prices of motor gasoline premium increased to retail at KSh 112.10 per litre in April 2011 from KSh. 103.32 per litre retailed in March 2011 while the price of. Light diesel during the same period retailed at KSh 108.29 per litre during the same period. In Nairobi, average retail prices for motor gasoline increased from the retail price of KSh 102.44 per litre in March 2011 to retail at KSh 124.17 per litre in December 2011 while the price of kerosene increased to retail at KSh 95.91 per litre during the same period. Light diesel retailed at KSh 117.52 during the same period. In the international market, the price of Murban crude oil increased by 7.2 per cent per barrel from US Dollars 112.55 per barrel in March 2011 to US Dollars 120.70 per barrel in April 2011.

PERIOD		MOTOR GASOLINE PREMIUM	LIGHT DIESEL OIL, GASOIL
		(KSh Per Litre)	(KSh per Litre)
2010	10-Apr	86.8	76.03
2011	11-Apr	112.1	108.29

Abu Dhabi National Oil Corporation (ADNOC) PRICES

2010	10-Apr	84.8	
2011	11-Apr	120.7	

Source: Kenya National Statics April 2011

### **THE MARKET IN KENYA**

There was a market for bi-products i.e. for sunflower and croton seedcake and shell packaged in kilos (use in animal feed) and for chestnut oil (compost only). The market for bio diesel was readily available with customers coming for the product from the factory. The market for cape chestnuts was comprised of specialized groups doing cosmetics and order based production.

### **HL EXPANSION DILEMMA**

Mr. Bernard Muchiri had worked at Horozon Ltd since it was founded. He was a graduate of Bachelor of Biological Science from University of Nairobi. As the MD, Bernard was answerable to the Management Board. Now he had to make a decision on which options to present to the board on how to grow the business; should they invite an external investor, which had been tried before with Solarix without success or develop new products to increase sales revenues? He wondered

## Exhibits

### Exhibit 1: Processing of Biodiesel

PROCESSING	TIME	COSTS	
1. Collection by Community: as per arrangement brought together to allow access as per agreement and MOU for protection. The seeds take time to collect.	400,000 trees each can produce 4 kgs. Every month to produce about 400,000 - 800,000 litres of cape chestnut oil every month which is sold at K.Shs.300 per litre	Farmers supply (previously at K.Shs.18/- per kg.). Currently at K.Shs.30/= per kg.	400 kgs of seeds produce 1 litre of Cape Chestnut Oil
2. Collection Centers: built after land is given/donated by community donors + few hired places paid for.			
3. Delivery by trucks owned by Horizon Ltd.			
4. Storage in own land			
5. Processing	8 hours		
5.1 Extraction (physical)		3 – 3.5 kgs to produce 1 Litre of cape chestnut oil	
5.2 Sifting	3-4 days		
5.3 Filtration		5 million inter bag	
5.4 Packaging: in 20 litres; 100 litres; 200 litres; 1,000 litres			

### HORIZON OILS: ESTIMATED COSTS OF PRODUCTION

Table 1-Table 5 ITEMS	Table 1: Croton		Table 2: Capechestnut		Table 3: Canola		Table 4: Sunflower		Table 5 : Castor	
	COST/L	%	COST/L	%	COST/L	%	COST/L	%	COST/L	%
<b>ESTIMATED SELLING PRICE</b>	110	100%	300	100%	160	100%	160	100%	100	100%
<b>VARIABLE COSTS</b>										
Seeds	42		120		87.5		80		40	
Electricity	5		4		3		3		5	
Labour	2		1.5		2		2		2	
Transport	1		1		1		1		1	
Machine Maintenance	1		0.5		0.5		0.5		1	
Sacks	1		1		1		1		1	
Bottles					4		4			

Labels					3.5		3.5			
<b>Total V.C.</b>	<b>52</b>	<b>47.30%</b>	<b>128</b>	<b>42.67%</b>	<b>102.5</b>	<b>64.06%</b>	<b>95</b>	<b>59.40%</b>	50	50%
Processing time					8 HOURS					
<b>FIXED COSTS</b>										
Machine Depreciation	1.5		0.25		0.25		0.25		1.5	
Overheads	5.5		5.5		2		2		5.5	
Labour	3		3		3		3		3	
Trade Licence	1.25		1.25		1.25		1.25		1.25	
KEBS Certification					4		4			
<b>Total F.C.</b>	11.25	10.00%	10	3.3%	10.5	6,56%	10.5	6.60%	11.25	11.25%
<b>TOTAL COSTS</b>	<b>63.25</b>	<b>57.50%</b>	<b>138</b>	<b>46%</b>	<b>113</b>	<b>70.62%</b>	<b>105.5</b>	<b>66%</b>	<b>61.25</b>	<b>61.25%</b>

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TABLE 6:

HORIZON LTD, INCOME STATEMENT FOR YEAR 2011				
	2011	2011	2010	2010
TOTAL SALES		360,000,000		303,856,000
LESS: TOTAL VC	171,000,000		142,812,320	
LESS: TOTAL MFG. OH	27,175,000		22,937,000	
TOAL COST OF GOODS MANUFACTURED	198,175,000	198,175,000	165,749,320	165,749,320
GROSS PROFIT		161,825,000		138,106,680
LESS: OPERATING COSTS				
Selling and marketing		212,754		216,272
Professional fees		228,587		174,869
Depreciation and amortization expenses		46,602		47,947
Other general and administrative expenses		22,009,900		17,719,000
Total selling, general, and administrative expenses		22,497,843		18,158,088
Income from operations		139,127,157		147,591,232
Interest income				
Interest expense		225,288		358,403
Loss on disposal of assets		8,685		
		138,893,184		147,232,829
Less: Tax at 30%		41,667,955		44,169,848
Net income		97,225,229		103,062,981

<b>TABLE 7</b>					
<b>B/S AS AT DEC,31, 2011</b>					
	<b>2011</b>	<b>2010</b>	<b>CURRENT LIABILITIES</b>	<b>2011</b>	<b>2010</b>
<b>CURRENT ASSETS</b>					
Cash	590,000	564,893	Accounts Payable	11,023,450	11,075,690
Accounts Receivable	15,008,740	16,006,780	Taxes Payable	5,500,000	3,300,000
Prepaid Expenses	2,216,690	3,120,000	Deferred Revenue	17,500,000	14,302,690
Stock	7,500,000	8,500,000			
<b>TOTAL CURRENT ASSETS</b>	<b>25,315,430</b>	<b>28,191,673</b>	<b>TOTAL CURRENT LIABILITIES</b>	<b>34,023,450</b>	<b>28,678,380</b>
<b>FIXED ASSETS:</b>			<b>LONG TERM LOAN</b>	<b>249,500,000</b>	<b>255,370,000</b>
Land & Buildings	120,000,000	120,000,000	<b>EQUITY</b>	<b>261,491,980</b>	<b>274,643,293</b>
Plant and Machinery ( Net of Accumulated Depreciation)	300,000,000	310,500,000			
Motor Vehicles ( Net of Accumulated Depreciation )	99,700,000	100,000,000			
Total Fixed Assets	519,700,000	530,500,000			
<b>TOTAL ASSETS</b>	<b>545,015,430</b>	<b>558,691,673</b>	<b>TOTAL LIABILITIES &amp; EQUITY</b>	<b>545,015,430</b>	<b>558,691,673</b>

TABLE 8

HORIZON FOR 2011	LTD:STATISTICAL	DATA	1	2	3	4	5	
			CROTON OIL	CAPECHESTNUT	CANOLA OIL	SUNFLOWER OIL	CASTOR OIL	TOTAL
SALES IN LITRES PER ANNUM			1,800,000	400,000	120,000	120,000	36,000	2,476,000
SALES PRICE PER LITRE INSHS.			110	300	160	160	100	
SALES:Shs,			198,000,000	120,000,000	19,200,000	19,200,000	3,600,000	360,000,000
VARIABLE COSTS			93,600,000	51,200,000	12,300,000	12,300,000	1,800,000	171,200,000
CONTRIBUTION MARGIN			104,400,000	68,800,000	6,900,000	6,900,000	1,800,000	188,800,000
MANUFACTURING OVERHEAD			20,250,000	4,000,000	1,260,000	1,260,000	405,000	27,175,000
COST OF GOODS MANUFACTURED			113,850,000	55,200,000	13,560,000	13,560,000	2,205,000	198,375,000
GROSS PROFIT			84,150,000	64,800,000	5,640,000	5,640,000	1,395,000	161,625,000

TOTAL FIXED COSTS FOR 2011								
MANUFACTURING OVERHEAD			20,250,000	4,000,000	1,260,000	1,260,000	405,000	27,175,000
Selling and marketing						212,754		
Professional fees						228,587		
Depreciation and amortization expenses						46,602		
Other general and administrative expenses						22,009,900		
Total selling, general, and administrative expenses						22,497,843		22,497,843
TOTAL FIXED COSTS FOR 2011								49,672,843
			CROTON OIL	CAPECHESTNUT	CANOLA OIL	SUNFLOWER OIL	CASTOR OIL	TOTAL
SALES IN LITRES PER ANNUM			1,800,000	400,000	120,000	120,000	36,000	2,476,000
SALES MIX (using litres sold) (1)			73%	16%	5%	5%	1%	100%
CM PER UNIT (2)			58	172	57.5	57.5	50	76.25201939