Sesame Sector Investment Opportunity Brief

Sesame Hulling

EXECUTIVE SUMMARY

This Sesame sector investment opportunity brief highlights the establishment of a Sesame processing facility to produce Hulled Sesame. The processing capacity of the facility is assumed to be 4 tons/day.

The total investment requirement is estimated at approximately $462,899, out of which $28,943 will be spent on purchase of processing machine. The Processing plant will create employment opportunities for 49 individuals.

The project is financially viable with an average annual net profit of $207,357, an average net profit margin of 6%, and a ten-year internal rate of return (IRR) of 42%. The NPV, at a 10% discount rate, is expected to be $1,003,445.

PRODUCT DESCRIPTION

The husk/skin of a Sesame seed equates to 17% of the weight of the seed. Removing the husk not only decrease the weight of the Sesame seed, translating into less cost of transportation as compared to cleaned Sesame Seed, but Hulled Sesame Seed has higher value in the international market as well. The husk contains oxalic acid and indigestive fiber- which in-turn reduces biological utilization ration and affects the taste of the seed.

Sesame seed is one of the oldest oilseeds known to man and is a good source of Protein, Vitamin B, Calcium, Zinc, Copper and Magnesium. The presence of these nutrients, has presented health benefits such as:

- Reduce blood pressure;
- Control the extent and frequency of asthma attacks;
- Reduce the possibility of stroke;
- Decreasing the effects of Osteoporosis (especially in women);
- Decreasing the severity of Migraine headaches; and
- Maintenance of bone density.

The taste of Hulled Sesame is more accentuated, as compared to raw Sesame Seed. This makes it preferable for bakery applications by sprinkling over bread, bread sticks, and other pastries. It also makes it ideal for applications in the Confectionary Industry. Sweetened Sesame, for instance, is prepared by mixing Sesame Seed with Sugar. Additionally, it is sprinkled over Sushi-type foods in countries such as Japan.

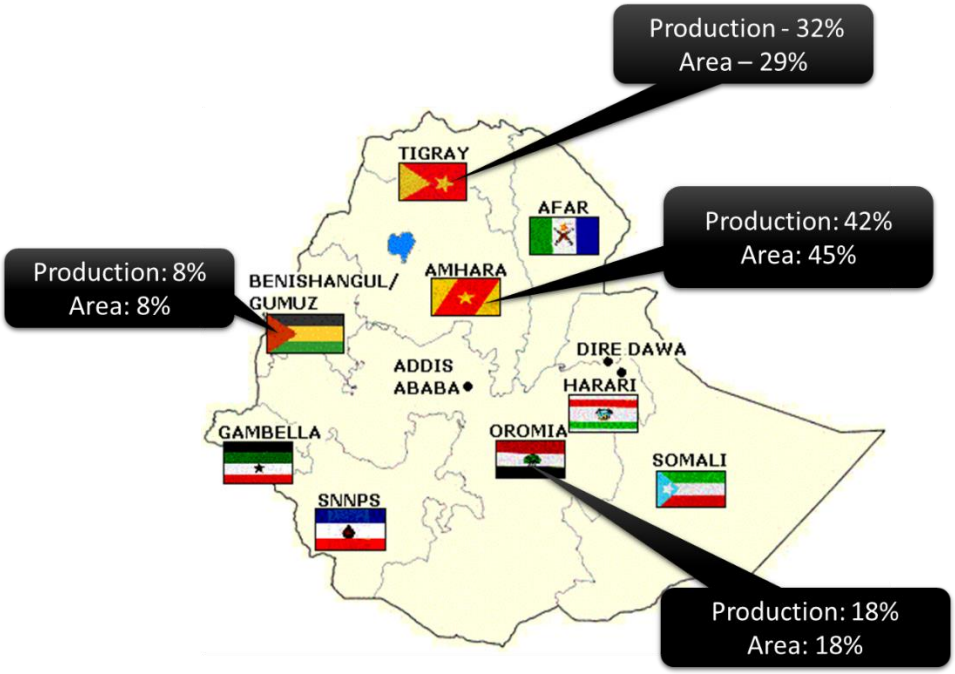
The most common application of Hulled Sesame, however, is further processing it into Tahini. Tahini is Sesame paste which is a prevalent food item in countries such as Israel and Greece. It is also an ingredient for the preparation of Humus.

During the hulling process, the Sesame Seeds might be crushed because their weight is below the average weight of Sesame Seed. As a result, the crushed Sesame will be removed as a by-product. Sesame oil processors purchase crushed Sesame Seed, since they will be able to use it as input.

ETHIOPIA SESAME SECTOR

Ethiopia is one of the major Sesame producing countries in the world, ranking 5th according to FAOSTAT (average: 2002 – 2012). Engaging more than 600,000 holders (CSA, 2013), the Sesame sector is one of the highest foreign currency earning sectors in Ethiopia. In just the first ten months of 2013, USD 345,967,164 has been generated from export of Sesame to different destinations, the prominent of which include China, Israel, Turkey, Jordan, and Japan. The exported Sesame is grown on the farms of small holders and commercial farmers in almost all the regions of Ethiopia.

Figure 1: Production of Sesame in 2012/13



Source: CSA

As in 2011/12, Ethiopia's largest production of Sesame in 2012/13 originated from Amhara Region. According to Central Statistics Agency of Ethiopia (CSA), the production of this region is 765,396 Quintal. The second highest Sesame production is attributed to Tigray Region, aggregating to 579,332 Quintals. The production in Oromia is estimated to be 152,268 Quintal, making it the third highest production area. According to recent estimates, 95% of this production is directly exported. The remaining 5%, local consumption, is highly restricted to bakeries and confectionaries.

SUPPLY

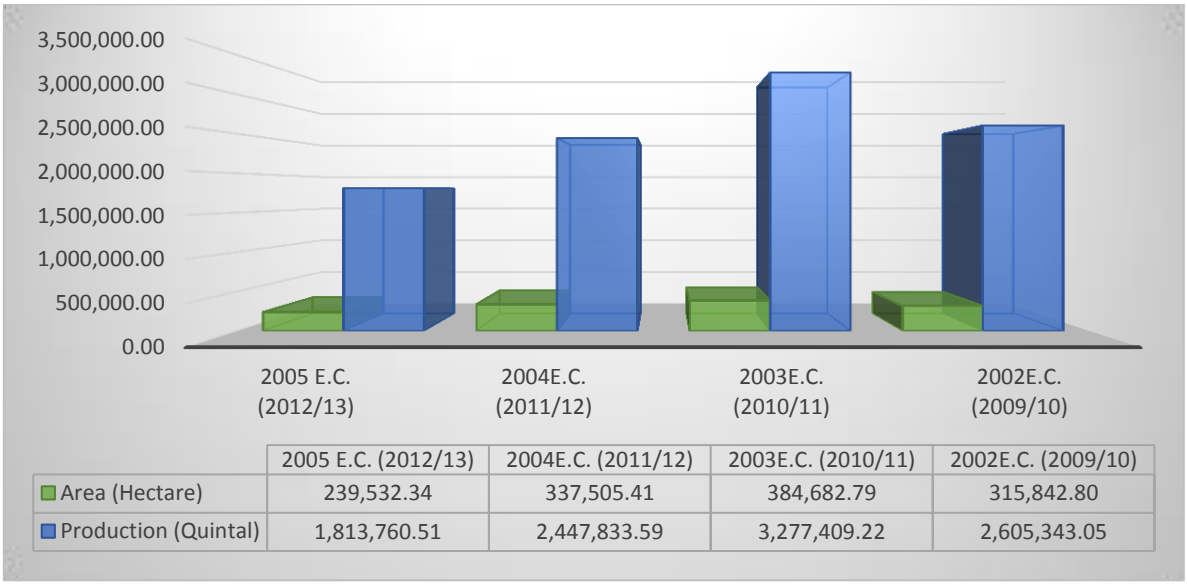
The Sesame Value Chain, however, is highly restricted to the cultivation of Sesame, cleaning and exporting. According to information gathered from Ministry of Trade, there are more than 190 organizations with license to export Sesame in Ethiopia. However, only three organizations are actively engaged in Sesame value addition to the level of Hulling. These organizations fully

export their products to countries such as Japan, USA, Israel, Turkey, Dubai, Poland, Middle East, and European Countries. The most dominant global supplier of Hulled Sesame Seed is China.

Currently, processors can only source their input (raw Sesame Seed) from their own farm, out grower scheme, or Ethiopia Commodity Exchange (ECX). 66% of the processors are using out grower scheme. The out grower scheme, a type of contract farming, requires the processors to provide the necessary inputs for the growers. The growers, in turn, will supply the Sesame cultivated at the market price solely to the processor. The remaining 33% purchase Sesame from the ECX trading grounds, alongside the Cleaned Sesame Seed exporters.

Sesame Seed grown on the land of small holders and commercial farmers, has steadily been decreasing starting from 2010/11. Parallel to this, the area under Sesame production has also been decreasing. Historical data of the Sesame production starting from 2009/10 until 2012/13 can be observed in the figure below.

Figure 2: Sesame Historical Production Data of Ethiopia



	2005 E.C. (2012/13)	2004E.C. (2011/12)	2003E.C. (2010/11)	2002E.C. (2009/10)
Area (Hectare)	239,532.34	337,505.41	384,682.79	315,842.80
Production (Quintal)	1,813,760.51	2,447,833.59	3,277,409.22	2,605,343.05

Source: CSA

Poor agronomic practices, especially the shattering Sesame Seed varieties currently in circulation in Ethiopia, are a major contributing factor for this.

Ethiopia also imports Sesame Seed in addition to the local production, however insignificant the amount is in comparison. According to the information provided by Ethiopian Revenues and Customs Authority (ERCA), Sesame is imported from countries such as China, United Arab Emirates, and Italy.

Table 1: Historical Sesame Seed Import Data of Ethiopia

Year	Net Wt. (Kg)	CIF Value (ETB)	CIF Value (USD)
2008	401	18,072	1,866
2009	257	10,276	866
2010	123	4,484	308
2011	290	27,191	1,593
2012	-	-	-
2013	713	28,809	1,538

Source: ERCA

DEMAND

Ethiopia is one of the major producers and exporters in the World. However, this product is aimed at the international market rather than the local one. In recent estimates, 95% of the production is exported. The local cuisine doesn't use Sesame Seed outside of sprinkling on bread and pastries and for confectionary purposes.

Table 2: Historical data of Local Consumption of Sesame Seed

Year	Production (Quintal)	Local Consumption (Quintal)
2005 E.C. (2012/13)	1,813,761	90,688
2004 E.C. (2011/12)	2,447,834	122,392
2003 E.C. (2010/11)	3,277,409	163,870
2002 E.C. (2009/10)	2,605,343	130,267
2001 E.C. (2008/09)	2,167,407	108,370
2000 E.C. (2007/08)	1,867,727	93,386

Source: CSA

The global demand of Hulled Sesame Seed originates from Japan, Egypt, South Korea, USA, Netherlands, and Gulf Countries. To satisfy the demand from these countries, Ethiopian companies have been processing and exporting for many years now. However, it is safe to assume that the local organizations will never satisfy this demand.

Table 3: Ethiopia Sesame Seed Export Historical Data

Year	Net Mass (Quintal)	FOB Value (ETB)	FOB Value (USD)
2007	1,396,530.40	1,187,936,148	131,297,031
2008	1,316,887.34	2,019,367,984	208,457,344
2009	2,557,828.16	3,885,533,310	327,260,679
2010	2,280,387.44	4,275,609,793	293,563,788
2011	2,537,470.22	5,907,139,428	346,161,341
2012	3,176,526.12	7,626,736,629	426,895,074
2013	1,803,189.41	6,481,625,620	345,967,164

Source: ERCA

According to estimates, the amount of Hulled Sesame Seed which is exported during 2013 is estimated at 62,501 Quintals.

PRICING

Sesame in Ethiopia is only traded on the ECX trading grounds. Generally, the price of Humera type of Sesame seed is usually higher than the other types. The most recent prices of Sesame on ECX trading ground are as follows:

Table 4: Price of Sesame at the end of January 10, 2014

Sesame						Jan. 10, 2014
Symbol	Open	Close	High	Low	Change	Vol_in_Ton
WWSSUG	3900	3930	3960	3900	30	57.70
WWSS5	3960	3950	3960	3950	-10	19.10
WWSS4	4025	4025	4025	4025	0	9.50
WWSS4	4050	4050	4080	4040	0	173.90
WWSS4	3900	3900	3900	3900	0	13.20
WHGS4	4100	4100	4100	4100	0	11.30
WHGS4	4050	4050	4050	4050	0	29.40
WHGS4	4110	4110	4110	4110	0	105.90
WHGS3	4150	4150	4150	4150	0	292.40
WHGS3	4240	4240	4250	4230	0	394.60
WHGS3	4250	4250	4250	4250	0	10.00
WHGS3	4150	4160	4250	4150	10	792.30
WHGS3	4250	4250	4250	4250	0	30.80
WHGS2	4150	4150	4150	4150	0	282.90
WHGS2	4240	4150	4250	4150	-90	511.10
WHGS2	4250	4250	4250	4250	0	54.90

Source: ECX

The prices at which Sesame Seed is sold is the major operational expenses that a Sesame Hulling Plant faces. As a result, it is one of the major factors that affect the pricing strategy to be employed. Another factor which is considered is the international market price of Hulled Sesame. Providing a margin, which will enable the organization to penetrate the market, the organization has set its selling price at $3/kg while the by product, crushed sesame, will be supplied at $1.50/kg.

PLANT CAPACITY

The organization includes a Sesame Cleaning and Hulling Machine. The capacity of the complete product line is 4 Ton/day. It is expected that 15% of the products will be crushed, i.e. crushed Sesame Seed. The envisioned organization will launch operation utilizing 70% of its capacity, and will reach 90% on the fifth year of operation. It will be operate for 8 hours and 300 days per year.

RAW MATERIALS

The integral raw material for the production of Hulled Sesame Seed is raw Sesame Seed. The cleaned and hulled Sesame Seed will be supplied in PP Bags.

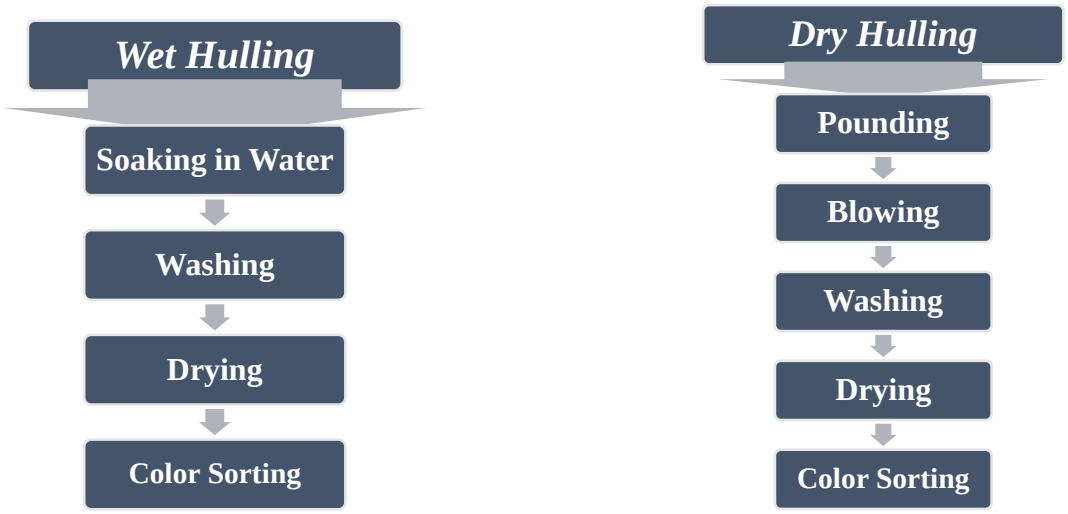
UTILITIES

The major utilities required by the envisaged project are water, electric power and fuel oil. The cost of these services is estimated to be minimal at slightly above $12,000 per year.

PRODUCTION PROCESS

There are two methods of hulling sesame: wet and dry hulling.

Figure 3: Process involved in Wet & Dry Hulling



The envisioned organization will be using dry hulling method. First and foremost, the purchased Sesame Seed will be cleaned. In this process foreign matters will be removed. The cleaned Sesame will be pounded, blown, washed, dried, and color sorted to result in Hulled Sesame. In this process, the Sesame Seeds with weights less than that of an average Sesame Seed will be crushed, thus resulting in the by-product.

ENVIRONMENTAL IMPACT

The foreign matters and husk/skin of the Sesame Seed will be the waste material of the envisioned organization. These waste materials will be carefully collected every day and disposed of in an environmentally friendly manner.

MACHINERY AND EQUIPMENT

The plant machinery and equipment required for the project is estimated to cost $28,943. These include the necessary equipment and transportation expense to purchase and install Sesame Hulling Plant.

LAND, BUILDINGS AND CIVIL WORKS

Total land area required is 6,500 square meters, which will be housing the Sesame Cleaning Plant, Sesame Hulling plant, and the warehouse for the input (raw Sesame Seed) and output (Hulled Sesame Seed).

Land can be leased from the City Administration, and as such, the cost of leasing land in the outskirts of Addis Ababa is estimated to be $26 per m^2. The total cost of leasing the land for 50 years is $6,333.

STAFFING

The organization will be able to provide employment opportunity for 48 individuals. The estimated annual salary requirement is anticipated to be $95,015. At time of processing machine installation, training will be provided to operators and management team on how to properly operate and maintain equipment.

FINANCIAL ASSUMPTIONS

The financial model of the project is based on the following assumptions;

Quantity (Kg)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Hulled Sesame Seed	714,000	765,000	816,000	867,000	918,000	918,000	918,000	918,000	918,000	918,000
Crushed Sesame Seed	126,000	135,000	144,000	153,000	162,000	162,000	162,000	162,000	162,000	162,000
Total	**840,000**	**900,000**	**960,000**	**1,020,000**	**1,080,000**	**1,080,000**	**1,080,000**	**1,080,000**	**1,080,000**	**1,080,000**

		1.05								
Price (USD)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Hulled Sesame Seed	3.00	3.15	3.31	3.47	3.65	3.83	4.02	4.22	4.43	4.65
Crushed Sesame Seed	1.50	1.58	1.65	1.74	1.82	1.91	2.01	2.11	2.22	2.33

	Project Years									
Revenue (USD)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Hulled Sesame Seed	2,142,000	2,409,750	2,698,920	3,010,983	3,347,504	3,514,879	3,690,623	3,875,155	4,068,912	4,272,358
Crushed Sesame Seed	189,000	212,625	238,140	265,675	295,368	310,136	325,643	341,925	359,022	376,973
Total	**2,331,000**	**2,622,375**	**2,937,060**	**3,276,658**	**3,642,872**	**3,825,016**	**4,016,267**	**4,217,080**	**4,427,934**	**4,649,331**

TOTAL INITIAL INVESTMENT COST

The total investment cost of the project including working capital is estimated to be $420,719. The following table summarizes the total investment cost breakdown;

Investment Type	USD
Land	16,667
Building and Civil work	65,000
Machinery and Equipment	28,943
Vehicles	25,641
Office Furniture and Equipment	7,692
Working Capital	276,776
Total Investment Cost	**420,719**

FINANCIAL ANALYSIS

Based on the projected financial statement, the project will generate profit throughout the projected period (10 years). Annual average net profit after tax is projected to be $207,357. The EBITDA margin is expected to be 7%. The IRR of the project will be 42%, indicating the financial viability of the business. The payback period of the project is 3 years. The NPV, at a 10% discount rate, is expected to be $1,003,445.

Description	Project Years									
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Sales Revenue	**2,331,000**	**2,622,375**	**2,937,060**	**3,276,658**	**3,642,872**	**3,825,016**	**4,016,267**	**4,217,080**	**4,427,934**	**4,649,331**
Operating Costs:										
Raw Material Cost	1,809,231	2,035,385	2,279,631	2,543,213	2,827,455	2,968,827	3,117,269	3,273,132	3,436,789	3,608,628
Wages and Salaries	95,015	99,766	104,754	109,992	115,492	121,266	127,330	133,696	140,381	147,400
Traveling Expense	4,751	4,988	5,238	5,500	5,775	6,063	6,366	6,685	7,019	7,370
Utilities	6,154	6,462	6,785	7,124	7,480	7,854	8,247	8,659	9,092	9,547
Fuel, oil and Lubricants	3,333	3,500	3,675	3,859	4,052	4,254	4,467	4,690	4,925	5,171
Insurance	1,794	1,883	1,978	2,077	2,180	2,289	2,404	2,524	2,650	2,783
Repair and Maintenance	5,212	5,212	5,212	5,212	5,212	5,212	5,212	5,212	5,212	5,212
Stationery and P.T.T	615	646	678	712	748	785	825	866	909	955
Audit Fee	1,795	1,885	1,979	2,078	2,182	2,291	2,405	2,526	2,652	2,784
Miscellaneous	2,564	2,564	2,564	2,564	2,564	2,564	2,564	2,564	2,564	2,564
Transportation Expense	233,100	262,238	293,706	327,666	364,287	382,502	401,627	421,708	442,793	464,933
Land Lease Expenses	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
Total Operating Costs	**2,168,564**	**2,429,529**	**2,711,200**	**3,014,996**	**3,342,426**	**3,508,909**	**3,683,715**	**3,867,262**	**4,059,987**	**4,262,347**
Gross Profit	**162,435.58**	**192,846.36**	**225,860**	**261,661**	**300,446**	**316,107**	**332,551**	**349,818**	**367,947**	**386,984**
Depreciation & Amortization	15,705	15,705	15,705	15,705	15,705	16,951	16,951	16,951	16,951	16,951
Profit Before Income tax	**146,730**	**177,141**	**210,155**	**245,956**	**284,741**	**299,156**	**315,601**	**332,867**	**350,997**	**370,033**
Less: Income tax	-	-	-	73,787	85,422	89,747	94,680	99,860	105,299	111,010
Net Profit	**146,730**	**177,141**	**210,155**	**172,169**	**199,319**	**209,409**	**220,920**	**233,007**	**245,698**	**259,023**