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MATRIC NUMBER; 19/ENG06/064

DEPARTMENT; MECHANICAL ENGINEERING

AFE 202 (FOOD SECURITY)

PROJECT; PRODUCTION AND REFINING OF SUGAR CANE

PROJECT DESCRIPTION

This business plan examines the feasibility of the development of a 500 hectres sugar cane plantation and the establishment of a sugar refinery in Ogun State. The farm will produce about 70 metric tonnes of sugar cane per hectre of land therefore it will produce about 35000 tonnes for 500 hectres annually, the sugar refinery will produce about 1 tonnes of refined sugar per 100 tonnes of sugar cane, which will amount to 350 tonnes of refined sugar , 4000 litre of ethanol per hectre of sugar cane (as a by-product after refining) which will amount to 2 million litres of ethanol, and Bagasse (a dry pulpy residue left after the extraction of juice from sugar cane). The sugar cane itself can be sold out to other sugar refinery companies like Dangote sugar division, and the refined sugar, sugar solution/syrup etc can be sold to food and drug companies. Nigeria imports about 700,000 metric tonnes of sugar annually, and spends an average of 166 billionNaria on the importation of sugar. Therefore there would be a high demand on the products.

Ethanol is a by-product of sugar production, and it is used as a bio-fuel alternative to gasoline. In some countries gasoline is required to contain about 22% of bio-ethanol. Therefore ethanol

can be sold to countries in need which in return boosts our economy.After years when the project is *firm on the ground* Expansion can occur and we can be a huge supplier of ethanol.

Bagasse is a dry pulpy residue left after the extraction of juice from sugar cane. Bagasse is a bio-mass with potential as fuel for energy production. With current technology, over 100kwh of energy is produced per tonne of bagasse. The Electricity produced in Nigeria is not enough for its citizens so utilizing Bagasse in the generation of electricity would improve the power sector.

SPONSORSHIP; The project would be sponsored by my parent Mr Ale Alaba.

MANAGEMENT; The management will comprise of a democratically elected board of Directors. This will be made up of share holders, and individuals who have stake in the survival growth and profitability of the business. The main purpose of the board is to make decisions that ensure a long term growth and success on the business.

TECHNICAL ASSISTANCE; Assistance is being sort for from the Bank of Agriculture and other commercial banks.

MARKET AND SALES;

Market Orientation; South-West, South-South & South-East Nigeria.

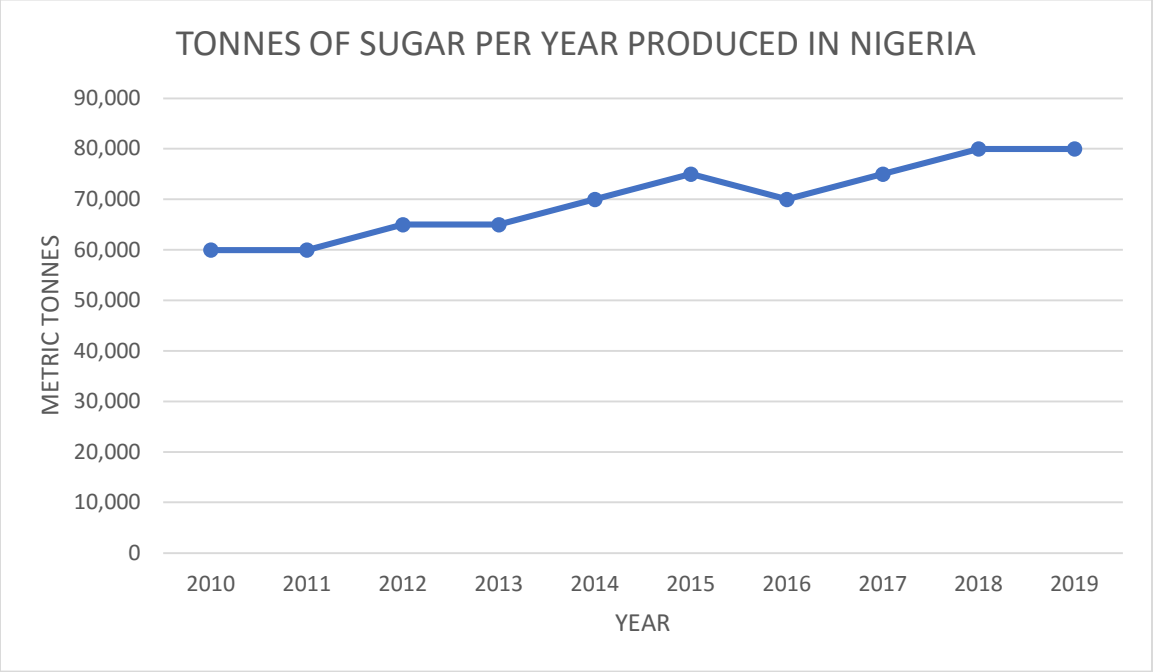
Users of Product; Sugar for Food companies as caloric sweetneers and in beverages, sugar and ethanol for Drug companies, sugar cane for processing in refineries, chemical industry (ethanol), Bagasse for the Power industry in the production of electricity.

COMPETITION ANALAYSIS; Nigeria imports averagely about 700,000 metric tonnes of sugar annually, and as of 2019 Nigeria produces about 80,000 tonnes which is roughly about 10.3% of our total consumption of sugar. The Major sugar refineries in Nigeria, are Dangote

Sugar Refinery, Golden Sugar Refinery and BUA Sugar Refinery which accounts for 99.8% of sugar use in Nigeria. According to the vanguard newspaper, as of 2017, sugar manufacturers imported over 1.4 million metric tonnes of sugar.

SUGAR PRODUCED PER YEAR IN NIGERIA

YEAR	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
METRIC TONNES	60,000	60,000	65,000	65,000	70,000	75,000	70,000	75,000	80,000	80,000



Dangote Sugar imported the highest volume; 850,929 metric tonnes.

BUA sugar; 291,010 metric tonnes.

Golden Sugar; 281,475 metric tonnes.

And they all have their sugar cane plantations.

In terms of ethanol, according to the Guardian Newspaper, Nigeria imports about 350 million Litres of ethanol yearly and produces about 9 million litre of ethanol yearly which is about 2.5% of our yearly ethanol consumption.

In terms of bagesse; If the government sees a future in the generation of electricity from bio-massthen we would be one of the main producers of bagesse.

Based on the above analysis, There is little or no competition in the selling of sugar cane for refining, and the selling of refined sugars or refined solutions to food and drug companies For manufacturing use. Also there is little or no competition in the production and selling of Ethanol and Bagesse. But there would be a lot of competition in the selling of refined sugar to house-holds for domestic use, because the consumers are attached to the aleady existing products.

MARKET POTENTIAL;sugar, ethanol is a product that is needed essentially in our daily lives; from the usage in preparing the food we eat (house-hold use) to the production of food, drinks, drugs (health recovery drugs) etc. Drugs is an essential product to human life. Without drugs the world would have an extremely high mortality rate.

SUGAR AND SWEETNERS; Sugarcane is a sugar crop. About 80% of sugar produced globally, comes from this food crop. It can be eaten as a fruit and is sold as such by local traders and hawkers. But commercially, it's sold to sugar mills to be processed into refined sugar. Pastry makers, bakeries, and homes all need this product, daily.

The annual increase in sugar consumption raises the demand for sugar and other sugar-like products like sweeteners. Syrups are extracted from certain sugarcane varieties and processed into sweeteners- a good substitute of sugar.

BEVERAGES; Naturally sweet, sugarcane is used to produce non-alcoholic, glucose-filled, energy drinks or juice and it's used as a flavor or sweetener in other mixed fruit juices. In addition, alcoholic drinks are made from a by-product of processed sugarcane called molasses. Molasses is the substance used in creating hot drinks like rum.

BIO PLASTICS; Plastic meal packages, soft drinks containers, water bottles and other plastic products are made with oil from sugarcane crops. Sugarcane-based plastic products are biodegradable—keeping the environment clean and healthy.

BIO-FUEL; Ethanol and Bagesse by-products of sugar cane can be used for the generation of electricity

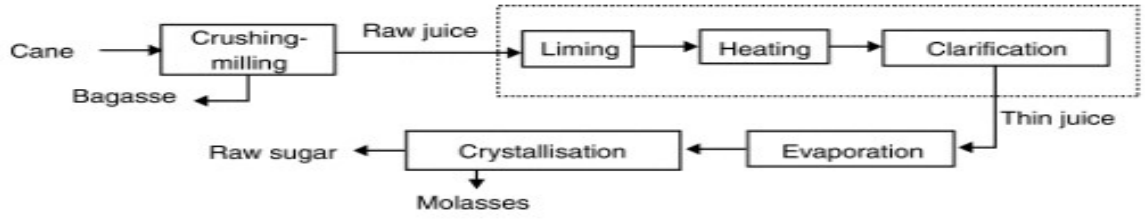
Therefore this product has a very high market potential, and will support trade and production whithin Nigeria.

PROFITABILITY; Environmental factors like (weather, temperature etc) would have a reduced effect on our production because we would be using an **AGRICULTURALLY CONTROLLED ENVIRONMENT** for some of our produce. An agriculturally controlled environment is a type of environment were plants are cultivated in a greenhouse(that is a place with controlled environmental factors) to produce crop efficiently and all year round. So some of our crops would be cultuvated in an agriculturally controlled environment to improve yeild.

TECHNICAL FEASIBILITY; The project (production of sugar cane, refining of sugar and the usage of its by-products) is technically feasible.

Sugar production involves two distinct operations (1) processing of sugar cane into raw sugar (2) processing the raw sugar into refined sugar

REFINING OF SUGAR CANE INTO RAW SUGAR



On the sugar cane production, we would have specialist in mechanization, irrigation, farm management, crop production, weed science, market development, agric extension and accounting as part of our management theme.

Ogun state was chosen to be the place where the farm would be so as to reduce transportation cost. Because major users of our product are in lagos; most drug(pharmaceuticals) and food companies are located in Lagos state, and the three major refineries in Nigeria are located in lagos and its neigbours.

We are implementing this project using best international practices, sustainable production and due consideration for the environment.

GOVERNMENT SUPPORT AND REGULATION

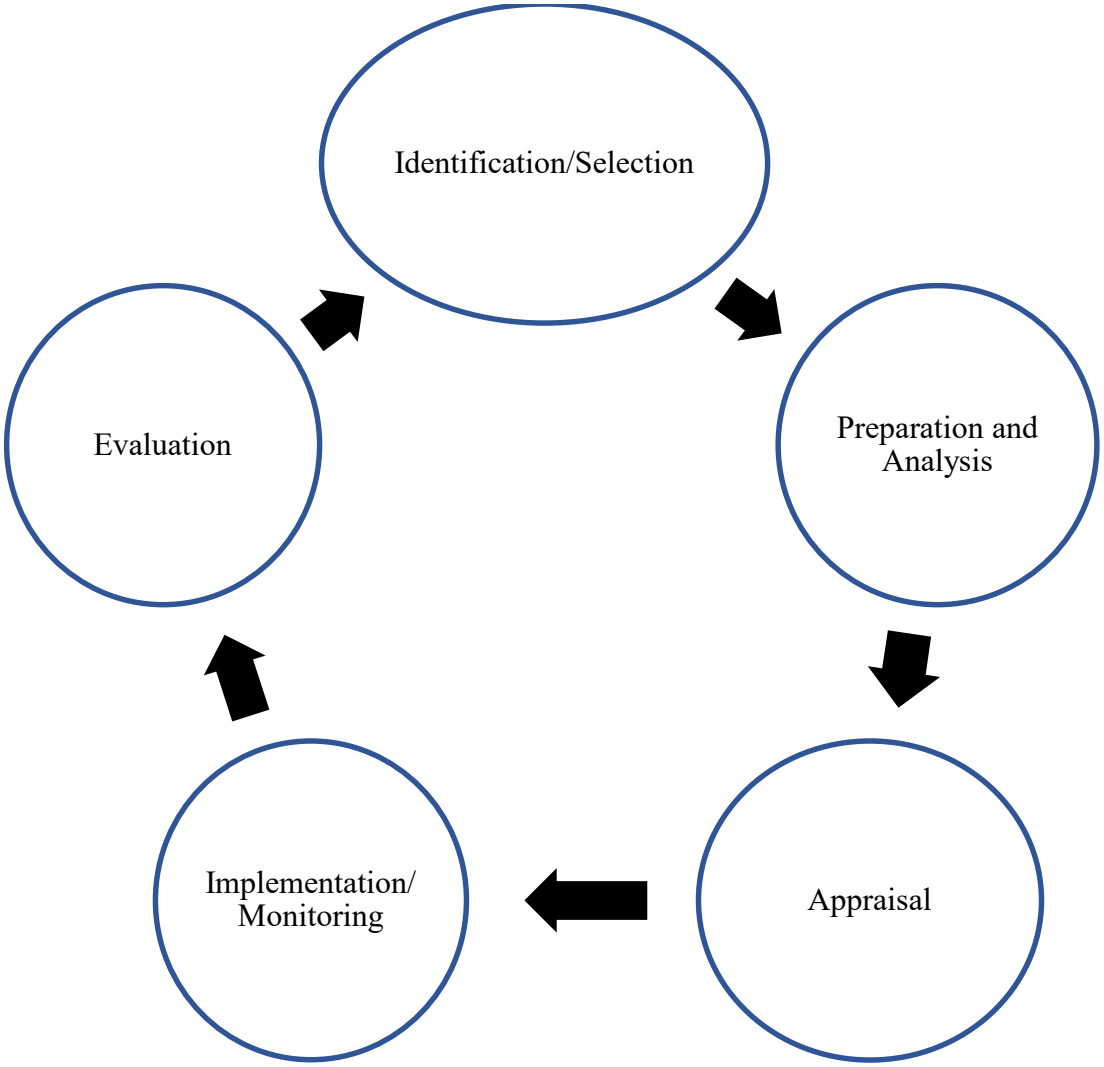
The projects conforms with the plan of the government to invest in Agriculture (Economic diversification). The project will contribute significantly to employment, output increase, stable price and stable exchange rate.

PROJECT TIME-LINE;

Sugar can be planted 3 times in a year October, July, February/March.

The Project will be complete whithin 13 months. Between October 2020 to November 2021.

PROJECT CYCLE;



ESTIMATED PROJECT COST AND REVENUE

LAND CLEARING

ACTIVITY	**QUANTITY**	**₦**	**K**	**$(USD)**
Land Clearing	1Hectare	230,000	00	575
Cross cutting	1Hectare	20,000	00	50
Rome ploughing	1Hectare	50,000	00	125
Sub total	1Hectare	**300,000**	**00**	**750**
Total	500 Hectare	**150,000,000**	**00**	**375,000**

EQUIPMENT

Name	**QTY**	**MODEL**	**USD**	**₦**	**K**
Tractor	1	YTO-904(90hp)	24,450	9,780,000	00
Crushing Mill	5		25,000	10,000,000	00
Furnace	1		4,000	1,600,000	00
Disc harrow	1	IBJ- 3.0	3,520	1,408,000	00
Sub soiler	1	IS-200G	3,250	1,300,000	00
Boom sprayer	1	3W-1000L-18	6,950	2,780,000	00
Front loader	1	TZ10D	6,570	2,628,000	00
Sub total			**73,740**	**29,496,000**	**00**

REVENUE

Yield from 500 hectare of sugarcane; A hectare produces 70 tonnes of sugarcane				
	Unit	Unit price(USD)	Amount	
			USD	~~₦~~ (~~₦~~400 to 1USD)
Revenue per hectare of sugarcane	70 Tonnes	25	1750	700,000
Total revenue from 500 hectares of sugarcane	500 x 70 x 25		875,000	**350,000,000**
Revenue from ethanol per hectare	4000 litres	0.7	2,800	1,120,000
Total revenue from ethanol, from 500 hectares of sugarcane	500 x 4000 x 0.7		1,400,000	**560,000,000**
Gross Revenue from 500 Hectares of Sugarcane			**2,275,000**	**910,000,000**

NB; EXCHANGE RATE USED IS 400 NARIA to 1 USD

CONCLUSION; The project is technically feasible and commercially viable. Therefore it is recommended for funding.

REFERENCES;

- https://en.wikipedia.org/wiki/Sugarcane
- AFE 202 feasibility report guide
- https://www.vanguardngr.com/2019/09/nigeria-to-save-56m-from-sugar-imports-targets-1-7m-tonnes-of-local-production-annually/
- https://knoema.com/atlas/Nigeria/topics/Agriculture/Crops-Production-Quantity-tonnes/Sugar-cane-production
- https://www.vanguardngr.com/2017/08/manufacturers-import-1-4mmt-of-raw-sugar-in-h1-2017/
- https://guardian.ng/news/nigeria-spends-n166-billion-yearly-on-sugarcane-importation-says-don/

- https://guardian.ng/features/nigeria-imports-350m-litres-of-ethanol-yearly-as-experts-suggest-solutions/