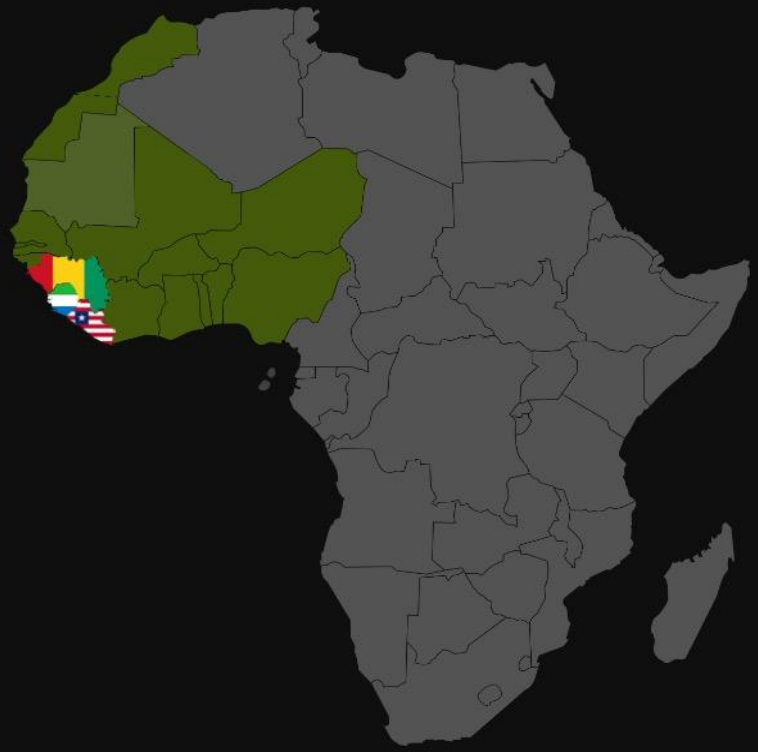
Exodus Trust International



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SUMMARY

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This study was conducted Dr. Fredrick John of the consulting group of Ramakorr Enterprises (SL). The purpose of this study is to explore the economic feasibility of establishing a palm oil processing plant for Exodus Trust Intl. (ETI) in coordination with vested stakeholder sites in the republics of Sierra Leone, Liberia, and Guinea. The objective is to supply the aforementioned domestic markets, ECOWAS member countries, as well as international producers and manufacturers.

A processing plant with a capacity of thirty tons per hour is analyzed in this study. The study is divided into three categories: cost, profitability and feasibility.

The Cost of investment is estimated by construction costs as well as current and concrete data provided by the various stakeholders vested in the production of palm oil for human consumption and alternative energy for power. The Profitability Analysis is measuring the net income or loss of operating the palm oil processing plant per month. The net present value of this investment has a positive value of **$82,687,352.** This means the investment will bring a net gain of **$82,687,352** for ETI after it operates.

THE BUSINESS PLAN

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This economic feasibility study is to estimate and calculate the cost of the processing plant, the cost of Manufacturing and running the processing plant, and the average return on investment.

Cost Analysis	Profitability Analysis	Feasibility Study
1.**Cost of the Building** a. Brick b. Sand c. Cement d. Rebar e. Doors and Windows 2. **Cost of equipment** a. Processing machine b. Packaging machine c. Other machine 3. **Other factory cost** a. Furniture b. Buckets to wash palm oil fruits c. Container to store palm oil fruits	1.**Sales revenue** a. Estimated total Production b. Selling Price 2. COGS – FFB price 3. **Operating expenses** a. Processing b. Maintenance c. Overhead 4. Interest expenses 5. Tax	1. Net Present Value a. Cost of Investment b. Expected profit (net Income) c. Rate of Interest or rate of return d. Payback period 2. Break-even analysis a. Total fixed cost b. Price c. Average variable cost

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By using development cost, operation cost and income, we have been able to construct an economic feasibility analysis. The purpose of which is to assess the profitability of the initial investment capital over the next ten years using Net Present Value method to calculate whether ETI should invest in building a processing plant.

The author will need the cost of the investment, in this case the cost of the processing plant from the first data section, the expected profit for each year from the second data section, the rate of interest (assumption), and the payback period.

Besides that, the author will also perform the break-even analysis to know when ETI will be break-even. The data for break- even analysis will be obtained from the previous calculations; total fixed cost, price, and average variable cost.

Sierra Leone | Liberia | Guinea

three of the palm oil producing countries in West Africa, supplying almost half the region's palm oil

Manufacturers and producers choose palm oil over other types of oil because palm oil gives a higher yield per ton of fruits.

INTRODUCTION

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An individual palm oil fruit consists of the outer skin (the exocarp), a pulp (the mesocarp), a central nut consisting of a shell (endocarp), and the kernel. The weight of an individual fruit ranges from six to twenty grams. The exocarp is the very outer skin of the individual fruit. The mesocarp is the orange yellowish part in the middle between the exocarp and endocarp. This part is the main ingredient for palm oil, which gives the carotenoids in the oil. The endocarp is the black circle surrounding the kernel. It is the inside shell of palm oil fruits that protecting the kernel. The kernel is the white part in the middle of the fruit. This part is used in palm kernel oil. On the tree, the individual fruits are in a bunch together. The weight of a fruit bunch varies between ten to forty kilograms. Fruit bunches usually are sold from the farmers to the processing plants. Before processing, the workers separate all the individual fruits from the bunch.

DATA ANALYSIS

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This analysis, list all the possible cost of building a processing plant in different categories. After listing all the possible cost, the proposer added all the cost in all the categories to get the total estimated investment.

Equation 1
• Total Investment = Cost of the building + Cost of the equipment + Other factory cost

Equation 2
• Revenue (Net Sales of CPO) = CPO ($/ton) x working hours (hour) x 30 tons/hour

Equation 3
• COGS (FFB price) = CPO ($/ton) x index "K" x yield x 5

Equation 4
• Operating expenses = [(Processing + Maintenance + Overhead without Depreciation) x working hours x 30 tons/hour] + Depreciation

Equation 5
• Net income = (Revenue – COGS) – Operating expenses – Depreciation – Interest expense – Tax

ASSUMPTIONS

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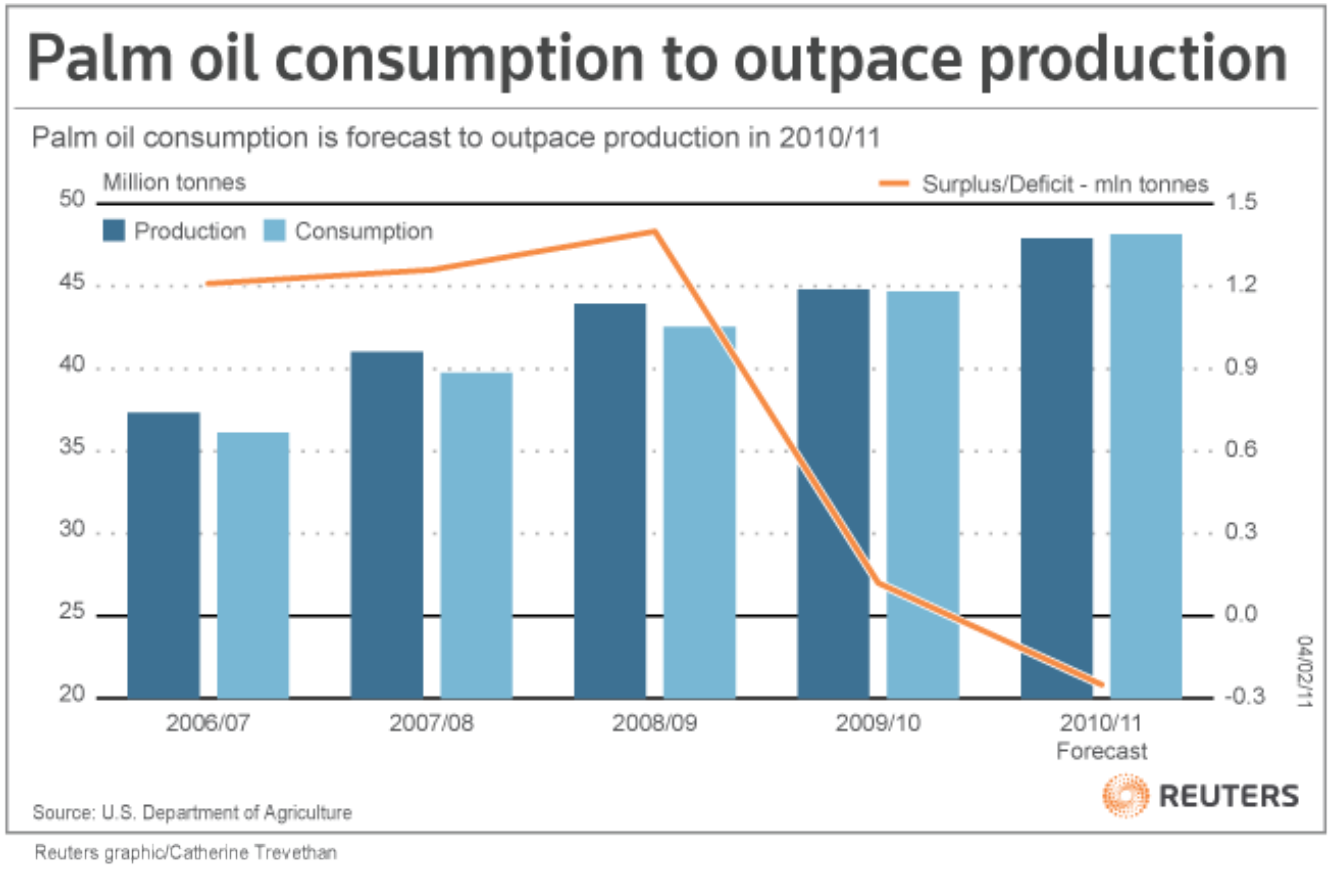

Reuters graphic/Catherine Trevethan

The study assumes that the demand of palm oil keeps increasing and ETI. will be able to sell all the Various products that have been processed and manufactured.

A future price of palm oil price will be used, assuming that the average price in the next ten years will be close enough to the estimate price.

The operation costs are based on another company's performance, which are already in the industry for more than twenty years. The interest rate and tax rate are held stable at the rate 12% and 25% respectively. The working hours are estimated as 12 hours a day and 20 days a month. It is estimated that the depreciation using the straight-line depreciation over 25 years period.

DEVELOPMENT OF STUDY

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The study is conducted to help ETI analyze the accounting and economic realities of having a new palm oil processing plant. This study will give broader views toward the expansion of the company into other ECOWAS countries as well as assess the processing efficiency in a palm oil processing plant in Sierra Leone. The Study also addresses the problem of the palm oil processing plant's optimal size. After analyzing the data from other companies with a similar size in West Africa, a processing plant with a capacity of 30 tons of palm oil per hour currently might be the optimal size for the Company as it shows that this investment will return a minimum average of 12% over the next 10 years.

INVESTMENT COST

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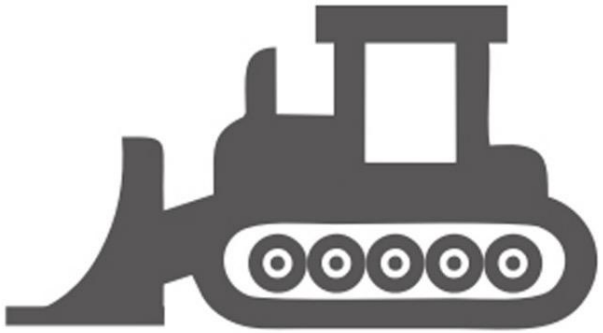

The costs of investment data are gathered by the author with consultations with the management team and a construction company in Sierra Leone. The cost is divided into five sections; preliminaries, earthworks, civil and structural works, mechanical works, electrical works, and proprietary of equipment.

Item	Descriptions	Amount
A	Preliminaries	$75,260
B	Earthworks, Civil, and Structural Works	$3,754,475
C	Mechanical Works	$5,029,075
D	Electrical Works	$653,666
E	Proprietary Equipment	$1,444,228
	Total	**$10,956,707.**

PROFITABILITY ANALYSIS Exodus Trust Intl.

- Exodus Trust Intl. will get its revenue from **Crude Palm Oil (CPO)**, **Palm Kernel Oil** and some other **by-products (biofuel, Coal pellets**, **Fertilizer**)
- The price of CPO is determined by taking a lower future price of CPO, which is **$973.20 per ton**.
- In similar projects in the region, the average future price of CPO for the next several years was above **$1,000 per ton**. Thus, the Consultant assumes the worst scenario when analyzing the data.
- The estimated working hours are 12 hours a day and 20 days a month.
- By using equation 2 above, the sales revenue every month is

approximately **$7,007,040**.

- For every ton of CPO produced, 5 tons of FFB are used. The cost of FFB is based on the current CPO price with a basis of 84.40% and a yield of 15.62%. (Ministry of Agriculture, Forestry and Food Security in Sierra Leone).
- By using equation 3 above, the cost of goods sold **(COGS)** every month is **$4,618,789**. The difference between the revenue and the cost of goods sold is shown as gross profits.
- The operating expenses are estimated using another private company in Liberia. Based on this company's data, the processing expense is **$16.92 per ton** of CPO.
- The maintenance expense is **$4.83 per ton** of CPO and the overhead expense, not including the depreciation, is **$2.29 per ton** of CPO.
- However, because the model processing plant we investigated has a larger scale operation compared to ETI, the author multiplies the expenses by three, assuming that ETI is new in the industry and not as efficient as the existing model company.
- For the depreciation, the Consultant takes the total cost of investment and depreciates it over 25years lifetime with straight-line depreciation.
- The total depreciation for each month is **$36,522.36**. By using equation 4, the total operating expenses every

month is **$555,594**. The difference between gross profits and total operating expenses is known as operating income.

- Other expense included in the income statement, is interest expense. Interest rate in West Africa on average is 12%.
- In the first few years, the Company has to pay around $100,000 for the interest expense.
- For this study, the Consultant calculates the total interest expense that the Company will have to pay and divides the total expense equally across every month over ten years period.
- The total interest expense will have to pay is **$7,906,923** and the **interest expense**, which will be shown in the income statement, is **$65,891** every month.
- The **net income** before taxes every month will be **$1,766,766**. With 25% tax rate in Indonesia, total **tax** which needs to be paid is **$441,692 per month**.
- **By using equation 5, the income statement every month has a net value of $1,325,075. (See Appendix 2)**

FEASIBILITY STUDY

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- After getting the two data, the cost of investment and the net income every month, the Consultant computes the net inflow over the next ten years.
- The Company **net income every year** is **$15,900,895.** Cost of capital (Kc) is computed as 11% because Exodus Trust Intl. would want at least 12% rate of return on investment.
- By using equation 6, the **total net inflow is $93,644,059**. By using this total net inflow, the net present value can be

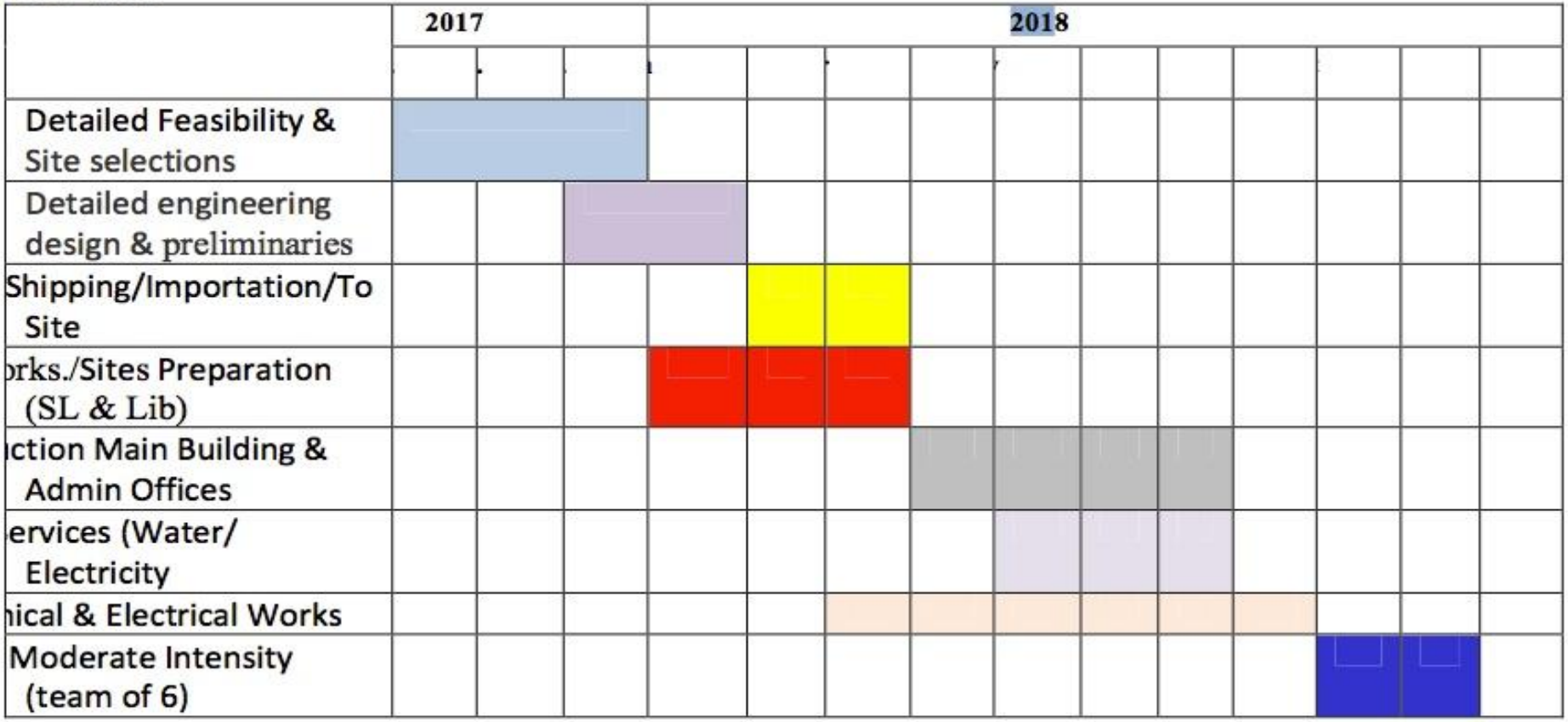
computed.

- The **net present value of this investment is $82,687,352** (See Appendix 4).
- The fixed costs for the break-even analysis are the repayment for the investment cost, depreciation expense and interest expense per month.
- The variable costs consist of the processing, maintenance, and overhead costs per ton. In this analysis, the Consultant uses the selling price at $973.20 per ton.
- By using equation 7, the **Company will breakeven at 1,000 tons per month**, given the current fixed cost, variable cost and selling price. (See Appendix 5).
- Based on the net present value analysis, the Consultant accepts the hypothesis. By making this investment, the **company will gain $82,687,352 over the next ten years**.
- **ETI only needs 1,000 tons per month to be break-even**

at the current fixed and variable cost.

- Meanwhile, the **expected sales will be 7,200 tons per month**.
- Thus, the investment of building a processing plant will be beneficial to the Company because it has potential accounting and economic benefits. It is an opportunity for the ETI to make the investment.
- The mill will be ruggedly constructed to be able to work long hours at maximum capacity without frequent breakdowns, or other unplanned stoppages.
- Unplanned breakdown maintenance will be kept to a minimum by a comprehensive preventive maintenance programed.

Time Lines



Sierra Leone								Liberia				Guinea					
30t/hr								30t/h				30t/hr					
2019												2020					
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct.	Nov.	Dec	Jan	Feb	Mar	Apr	May	Apr
								CPO Packaging & Soap Plants									

CONCLUTION

Exodus Trust Intl.



- A palm oil processing plant with a capacity of thirty tons per hour is a feasible size for Exodus Trust Intl. in West Africa, beginning with the Mano River Union countries of Sierra Leone, Liberia and Guinea.
- The investment will give a net gain for ETI and give a minimum return of 12%.
- The Consultant uses 240 working hours as the estimate working hours in the analyses, which is believed to be the

optimal.

- The investment costs show that building the palm oil processing plant with a capacity of thirty (30) tons per hour is a huge investment.
- Based on this study, it is estimated that the **ETI will get a net income of $1,325,075 per month**.
- The repayment for the investment cost will be paid off over the next ten years.
- The repayment each month will be $157,197. Thus, after repayment, the Company will gain about $1,000,000 every month.
- The investment has a net present value of $82,687,352, which means that if Exodus Trust Intl. invests today, it will get $82,687,352 gain from the investment in the present's value. Moreover, the **ETI only needs to produce 1,000 tons per month to cover all its fixed costs**. With an estimate 240 working hours, the processing **plant can produce 7,200 tons per month**.
- Thus, the Company (Exodus Trust Intl.) will benefit from the investment based on this analysis.

RECOMMENDATIONS

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This is an initial study to help the management team of Exodus Commodity Investment Trust Company to make decision if it is financially feasible to build a palm oil processing plant with a capacity of thirty tons per hour. The costs estimation is based on three another company performances in the region, that are already in the industry for some years. Even though the estimation gives a good overall picture, the management team has to make adjustments after the first two months of production, in order to get a more accurate projection of the long run.

The working hour estimation is based on the Consultant and study team's assumption. Thus, it is necessary to make adjustments after the first few months of production and after the first year of production to make the annual budget plan. A further study might be needed to provide more inputs on the issues of efficiency and sustainability.

APPENDIX

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Cost of Investment Data

SN	Descriptions	$ Amount (usd)
1	Cost of Insurance	26,601
2	Safety	6,488
3	Site Survey And Setting Out	6,488
4	Mobilization and Demobilization	9,732
5	Temporary Site Office	6,488
6	Site Supervision	12,976
7	Temporary Workers' Quarters	6,488
	Total	75,261

Earthworks, Civil and Structural Works

SN	Descriptions	Amount
1	Earthworks	324,400
2	Sterilizer building	366,021
3	Main process building	834,357
4	clarification station, engine room, and boiler house	391,129
5	Loading ramp (foundation and concrete works)	472,197
6	Machinery foundation	432,944
7	Sterilizer condensate pit and sludge pit	94,400
8	Canteen	16,220
9	Office block & lab	71,368
10	Workshop & store	115,811
11	Toilet	4,866
12	Guardhouse, oil loading shed, car-park, raw water intake pump house, motorbike & bicycle shed	44,767
13	Oil tank foundation	78,635
14	Fencing and main gate	43,470
15	Drains	188,152
16	Concrete road	259,520
17	Raw water treatment plant area	16,220
	Total	$3,754,476

Mechanical Works

SN	Descriptions	Amount
1	Fruit Reception	469,958
2	Sterilization Station	580,514
3	Threshing Station	760,588
4	Pressing Station	460,161
5	Clarification Station	321,221
6	Depericarping Station	223,901
7	Kernel Recovery Station	593,749
8	Boiler House	236,715
9	Power House	50,931
10	Oil Storage Tank	278,368
11	Raw Water Treatment	243,495
12	Effluent Treatment	8,564
13	Fire Protection Equipment	27,347
14	Boiler Water Treatment	114,675
15	Piping System c/w Valves, Flanges, Joint Support & Fitting etc.	658,889
	Total	$5,029,076

Electrical Equipment

SN	Descriptions	Amount
1	Synchronizing main switchboard & capacitor	58,392
2	Motor control starter panel	103,808
3	Distribution board	16,220
4	Generator main cables	61,636
5	Sub-main cables	145,980
6	Lightings & power points wiring c/w fittings	25,952
7	motor and level control wiring	136,248
8	Street/Out Door lighting	22,708
9	Overhead power line	58,392
10	Earthing system	11,354
11	Lighting protection system	12,976
	Total	$653,666

Proprietary Equipment

SN	Descriptions	Amount
1	Boiler (30TPH)	746,120
2	Turbine (1.2MW)	227,080
3	Genset (1 unit 400kW & 1 unit 250kW)	145,980
4	Decanter (3phase)	178,420
5	Desanding System (Double Cyclone module- Duplex Version)	16,220
6	Vacuum Drier c/w Pump	26,601
7	Purifier	55,148
8	Weighbridge	29,196
9	Surface Aerator	19,464
	Total	$1,444,229

MONTHLY INCOME STATEMENT

Exodus Trust Intl.

Revenue		
Sales Revenue of CPO	$7,007,040 Cost of Goods Sold	
Cost of FBB	$4,618,789	
Gross Profit		$2,388,251
Operating Expenses		
Processing Expenses	$365,376	
Maintenance Expenses	$104,304	
Overhead Expenses	$85,914	
Total Operational Expenses		
Operating Income		$555,594
Other Expenses		$1,832,657
Interest Expense		$65,891
Net Income Before Tax		$1,766,766
Tax		$441,692
Monthly Net Income		$1,325,075

NOTES

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- Selling Price per ton $973.20
- FFB per ton $128.30
- Processing costs per ton CPO $50.75
- Maintenance costs per ton CPO $14.49
- Overhead costs without depreciation per ton CPO $6.86
- Depreciation per month $36,522
- Total production per month $7200
- Interest rate 12%
- Tax rate 25%

BREAK-EVEN ANALYSIS

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$$\text{BREAK -EVEN} = \frac{\text{Total Fixed Cost Selling Price}}{\text{Variable Cost}}$$

$$\text{BREAK -EVEN} = \frac{\$259{,}610}{\$973\text{-}\$714}$$