PREAFEASIBILITY STUDY ON SETTING UP BIO FERTILIZERS MANUFACTURING IN NIGERIA

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ABOUT THIS REPORT

This prefeasibility study is designed to provide potential and startups entrepreneurs' valuable information on setting up Bio-fertilizer manufacturing unit in the agro processing industry of Nigeria's market; aimed at encouraging and facilitating industrial activities across the country. It is our realization that industrialization is at the heart of economic development and that every effort has to be made to bring about industrial growth and encourage our people to be part of it.

The Bio-fertilizer business shows over 80% local content in terms of availability of raw material, equipment and machinery, manpower and other requirements.

The key areas covered in this report include:

- i) Technical and economic analysis of the production, marketing and profitability of the project.
- ii) Recommendations in respect of procurement of equipments and associated problems.
- iii) Recommendation on suitable agronomic management practices to ensure efficient running of the projects.
- iv) Detailed financial analysis including project cash flows for the projects.

This prefeasibility report provides a comprehensive and detailed coverage of the above terms of reference and is designed to facilitate investment decisions.

The implementation of this project will also impact positively on the economy of the immediate community where the project is located. This is in terms of employment-direct and indirect, skilled and unskilled. Government also stands to benefit from internal revenue from taxation.

In view of the result of the analysis using some economic indicators as stated in the proposed project, it is hereby recommended that the project is viable.



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PART I EXECUTIVE SUMMARY

This investment profile envisages the setting up of a plant that manufactures Bio – Fertilizers in most suitable part of Nigeria.

Bio-fertilizer' is a substance which contains living microorganisms which, when applied to seeds, plant surfaces, or soil, colonizes the rhizosphere or the interior of the plant and promotes growth by increasing the supply or availability of primary nutrients to the host plant. Fertilizers directly increase soil fertility by adding nutrients. Bio-fertilizers add nutrients through the natural processes of fixing atmospheric nitrogen, solubilizing phosphorus, and stimulating plant growth through the synthesis of growth promoting substances.

This is rural micro enterprise project and would be best sited in the rural community within the farmer's proximity and availability of basic infrastructural facilities.

The installed capacity has estimated capacity of 468,00kg per annum at 60% capacity utilization.

1.1 SUMMARY OF TOTAL PROJECT COST

| S/N | DESCRIPTION | COST TO BE | COST TO BE | TOTAL |
|-----|----------------------------------|------------|------------|------------|
| | | INCURRED | INCURRED | |
| 1 | Land & building | - | 480,000 | 480,000 |
| 2 | Machinery & equipments | - | 4,607,200 | 4,692,800 |
| 3 | Utility equipment | - | 290,000 | 290,000 |
| 4 | Office equipments | - | 200,000 | 200,000 |
| 5 | Vehicle | - | 2,200,000 | 2,200,000 |
| | Total capital cost | - | 9,977,200 | 10,062,800 |
| 6 | Working capital | - | 2,400,000 | 2,400,000 |
| 7 | Contingencies & preliminary exp. | - | 712,560 | 712,560 |
| | Total Project cost | - | 13,089,760 | 13,175,360 |

1.2 FINANCIAL ACCOUNTING RATIOS ANALYSIS PERFORMANCE RATIOS AVERAGES

(a) Return on Sales = 5% (b) Return on Equity = 391% (c) Return on Investment = 203%

(d) Positive NPV = $\frac{\text{H}}{95,574,623}$

(e) IRR =46% (f) ARR =203% (g) Payback Period = 11 months



PART II MARKET ANALYSIS

2.1. INTRODUCTION

Bio-fertilizer is the need of modern agriculture since demand for safe and residue free food is increasing. In view of the shifting focus towards organic farming and reduction of chemical residues in the environment, it is necessary to promote the production of bio-fertilizers in large scale by the private sector to cater the current demand. The demand for Bio-fertilizers is spread in almost all agriculture practicing areas in Nigeria.

2.2 MARKET AREA ANALYSIS

According to the Federal Ministry of Agriculture and Rural Development of Nigeria Survey, nitrogen deficiency is severe in more than 80% of the land in Nigeria (nitrogen content below 0.1%), more than 75% of the land is in serious phosphorus deficiency (phosphorus content below 10mg / kg), more than 60% of the land is in moderate or severe potassium deficiency (potassium content below 25 mlg / kg). Due to high prices, the annual application amount of fertilizer is only 1 million tons (of total various fertilizer), only an average of more than 30 kilograms per hectare, which is well below China farmland fertilizer usage. Therefore, Nigeria has great potentials in chemical and organic fertilizer consumption and usage.

There were two big fertilizer production manufacturers-the Federal Super phosphate Fertilizer Company (FSFC) set up in 1976 and the National Fertilizer Company of Nigeria (NAFCON) set up in 1988 for the production of urea. Because of poor management, the two fertilizer companies have been stopped production for over 10 years.

There is already awareness among the farmers related to bio fertilizer and becoming popular gradually. Now Bio fertilizers of many brands are readily available in the market through the regular dealer/ distributor network.

2.3 INDUSTRY ANALYSIS

The market can be divided into various groups of buyers. First of all, the organic producers will be the most important buyers as organic production without bio fertilizers will not be possible. Among nonorganic producers, the market can be segmented by "specific crop grower (Fruits/ Vegetable/Oilseed/ Pulses/Sugarcane/Cereals), institutional buyers (Cane/ Tea/ Coffee/ cotton/ oilseeds/pulses federations & research-farms, SFCI, Agro-industries etc). Bio fertilizers can be easily positioned as environmentally friendly growth enhancer manure with long term benefits such as enrichment of soils.

Similarly, tie-up with Export oriented crops like turmeric, ginger, spices, fruits and Vegetable growers could be undertaken as the organic products are being preferred by this segment due to compulsion of importing nation's condition of permissible limits of chemical residues in the produce.



2.4 TARGET MARKET ANALYSIS

Basically, the target market for the product is farmers in rural and semi rural communities. Although, the market for the product is lagging due to lack or inadequate awareness as most farmers prefer chemical fertilizer to organic. However, the entrepreneur(s) need to collaborate with agricultural extension workers, ministries, government and non governmental agencies in Agriculture etc. This will assist in enlightening the farmers about the efficacy, affordability as well as the sales of the products.



PART III TECHNICAL ANALYSIS

3.1 PRODUCT DESCRIPTION

Bio-fertilizer' is a substance which contains living microorganisms which, when applied to seeds, plant surfaces, or soil, colonizes the rhizosphere or the interior of the plant and promotes growth by increasing the supply or availability of primary nutrients to the host plant.

In spite of being cost effective input, the Bio-fertilizers have not been accepted by the farmers completely till now. Some of the reasons/constraints for low acceptance of Bio-fertilizer are narrated below.

- a) Bio-fertilizers are live microorganisms which die in case of high temperature.
- b) The shelf life of bio-fertilizer is limited to 6-12 months in powder form.
- c) The Bio-fertilizers are used before sowing and delay in dispatches leads to inventory carry over and expiry of product.
- d) Some of the bio-fertilizers are crop specific as well as location specific and therefore its efficacy does not remain same at different locations due to difference in agro-climatic conditions & soil ediphic factors.
- e) Soil characteristics like high nitrate, low organic matter, less available phosphate, high soil acidity or alkalinity, high temperature as well as presence of high agro- chemicals or low micro-nutrients contribute to failure of inoculants or adversely affect its efficacy.
- g) Supply of Sub-standard or spurious material by some of the manufacturers also adversely affect the credibility of the Bio-fertilizers, being a new product.
- h) Some firms are selling organic manures as Bio-fertilizers. Some organizations mention shelf life as two years/one year despite norm of maximum 3-6 months.
- j) Lack of awareness of the farmers regarding benefits of bio-fertilizer.
- k) There is no magic effect of bio-fertilizer & its impact is not visible in standing crop and therefore farmer is not convinced with the benefits of bio-fertilizer use.

3.2 LOCATION ANALYSIS

It is advisable to set up one Bio fertilizer production unit in centralized location of each of four geographical parts (North, South, East and West) of the state. Each of these units will thus be able to cater up to approximately 200km² areas.

The site for setting up of unit should have good road connectivity and supply of electricity with support for uninterrupted power supply.

3.3 RAW MATERIAL

Raw materials needed for the production of biofertilizers are as follows:

Mother cultures



- Carrier material lignite or bentonite or peat of desired quality in powder form (70-100 mesh).
- Pet bottles of desired quantity, cardboard cortans.
- Growth materials include Manital, sucrose and chemical nutrients.

The major supplies are readily available in the Nigerian chemicals and Agro industries.

3.4 PRODUCTION PROCESS AND TECHNOLOGY

The Bio-fertilizers are large population of viable cells of effective strains of specific nitrogen fixing bacteria that can be either supplied through carrier based powder form or in liquid formulations for use in farming. Bio fertilizers production technology includes isolation of bacteria, selection of suitable effective strain, preparation of mother or seed culture, isolation of bacteria(inoculants o, selection of suitable effective strain, preparation of mother or seed culture, inoculants production, carrier preparation and their mixing, followed by curing, packaging, storage and dispatch.

3.5 PRODUCTION CAPACITY

This plant will be established on the premise of producing 1000kg of bio-fertilizers per day.

3.6 SOURCES OF FUNDS

The project can be funded through a number of sources which include but not limited to the following; Agric-Business, Small & Medium Scale Investment Scheme (AGSMEIS), Bank of Industry, Bank of Agriculture (BOA), Nigeria Export-Import (NEXIM) Bank, International Finance Corporation (IFC), grants etc., though the conditions and criteria for accessing the loans and grants varies.



PART IV FINANCIAL ANALYSIS

Basically, the financial section of this prefeasibility study consists of three financial statements: Income statement, Balance sheet, Cash flow projection. This section determines whether or not the project is viable using some economic indicators such as Net Present Value (NPV), Internal Rate of Return (IRR), and payback period as are detailed in the appendices below.

4.1 ASSUMPTIONS

- 1. Assuming that the project will last for the period of five years and the salvage value at the end of the project life ignored.
- 2. The Machineries, Equipments and Utility Equipment have uniform depreciation of 20%.
- 3. The installed capacity has estimated capacity of 468,000kg per annum, at 60% capacity utilization.
- 4. The proposed capacity utilization are 60% in the first year of commercial production, 70%, 80% in the 2nd and 3rd year respectively and 90% in the 4th and 5th years.
- 5. Raw materials will be sourced locally and Market for the product is readily available.
- 6. Staff and labour cost will increase by 10% yearly.
- 7. Prices and unit costs are assumed unchanged in the five years of projection.
- 8. The valuation currency used is Naira.

4.2 ACCOUNTING /FINANCIAL ANALYSIS

4.2.1 NET PROFIT

The projected Annual Trading Profit and Loss Account is proposed to make the following Net Profit after tax during the corresponding projected periods – all things being equal.

4.2.2 NET PRESENT VALUE (NPV)

NPV is one of the four methods of discounted cash flows techniques which state that money that is immediately available for use, has a greater value than same amount receivables in future date.

Using this method however, all net cash inflows will be discounted to present value using the estimated interest rate of 60% discount factor. At 12% discount factor the project produced a positive NPV NGN 95,574,623

4.2.3 INTERNAL RATE OF RETURN (IRR)

This is the discount rate which gives zero NPV or the rate which equates the present value of cash inflows with present value of cash outflows of the project.



The cash flow of this project was discounted systematically until the NPV of the project finally become zero. The project produces the **IRR** of **46**%. Thus, the project accepted as being viable. This is because **IRR** is more than the cost of capital.

4.2.4 ACCOUNTING RATE OF RETURN (ARR)

ARR uses accounting information as revealed by financial statements (Income Statement) to measure profitability of the project under consideration. The forecast **ARR** of the project is **203%.**

4.2.5 PROFITABILITY INDEX (PI)

This is the present value of future cash flows over the present value of cash outlays. The project PI further confirm the viability of the project, because as the rules of the accepting and rejecting hold, a project should be accepted if the PI is equal or greater than one (1). Consequently, the PI of this project is 1.72 and thus recommended as being viable to be accepted for financing.



APPENDIX I TOTAL PROJECT COST

| S/N | DESCRIPTION | QTY | UNIT COST | TOTAL |
|-----|-----------------------------|-----|------------|------------|
| | LAND & BUILDING | | | |
| 1 | Factory rentage | 1 | 480,000 | 480,000 |
| | Sub total | 1 | 480,000 | 480,000 |
| | MACHINERY & EQUIPMENTS | | | |
| 2 | Boiler | | 480,000 | 480,000 |
| 3 | Auto Claves | | 1,200,000 | 1,200,000 |
| 4 | Rotary Shakers | | 60,000 | 120,000 |
| 5 | Fermenters | | 27,200 | 52,800 |
| 6 | Hot air Oven | | 400,000 | 400,000 |
| 7 | Air Conditioner | | 360,000 | 360,000 |
| 8 | Water Distiller | | 400,000 | 400,000 |
| 9 | Microscope | | 480,000 | 480,000 |
| 10 | Balances | | 57,200 | 57,200 |
| 11 | Lab Equipment | | 120,000 | 120,000 |
| 12 | Refrigerator | | 297,200 | 297,200 |
| 13 | Laminar air flow | | 172,000 | 172,000 |
| 14 | BOD Incubator | | 53,600 | 53,600 |
| 15 | Sealing Machine | | 500,000 | 500,000 |
| | Sub total | | 4,607,200 | 4,692,800 |
| | UTILITY EQUIPMENT | | | |
| 16 | Generator | 1 | 250,000 | 250,000 |
| 17 | Other utility accessories | 1 | 40,000 | 40,000 |
| | Sub total | 2 | 290,000 | 290,000 |
| | OFFICE EQUIPMENTS | | | |
| 18 | Computer & printer | 1 | 150,000 | 150,000 |
| 19 | Furniture & fittings | 1 | 50,000 | 50,000 |
| | Sub total | 2 | 200,000 | 200,000 |
| | VEHICLE | | | |
| 21 | Delivery Van | 2 | 4,400,000 | 4,400,000 |
| | Sub total | | 4,400,000 | 4,400,000 |
| | Total capital cost | | 9,977,200 | 10,062,800 |
| 22 | Working capital | | 2,400,000 | 2,400,000 |
| 23 | Contingencies & preliminary | | 712,560 | 712,560 |
| | Total Project cost | | 13,089,760 | 13,175,360 |



APENDIX II ESTIMATION OF WORKING CAPITAL REQUIREMENT

N'000

| Year of Commercial Operation | 1 Year |
|--------------------------------------|--------|
| % Capacity Utilization (Inventory) | 60% |
| 1 week stock of raw material | 850 |
| 1 Day stock of finished products | 350 |
| Work in Progress | 200 |
| Bank/ Cash (preoperational expenses) | - |
| Working capital | 1,400 |

APPENDIX III FINANCING PLAN

N

| DESCRIPTION | EXISTING | PROPOSED | TOTAL |
|--------------------|-----------|------------|------------|
| Equity | 1,175,360 | | 1,175,360 |
| Term loan from | - | 12,000,000 | 12,000,000 |
| Total project cost | 1,175,360 | 12,000,000 | 13,175,360 |
| % Contribution | 15% | 75% | 100% |

APPENDIX IV TERM LOAN REPAYMENT SCHEDULE

LOAN AMOUNT: 12,000,000 (Twelve Million Naira)
TYPE : ANY LOCAL AVAILABLE SME FUND

INTEREST RATE USED: 12%

REPAYMENT: 5 YEARS EQUAL INSTALLMENT (Annually)

| YEAR | OPENING | REPAYMENT | INTEREST | TOTAL YEAR |
|-------|------------|------------|-----------|------------|
| | BALANCE | | DUE | INTEREST |
| 1 | 12,000,000 | 2,400,000 | 1,440,000 | 3,840,000 |
| 2 | 10,600,000 | 2,400,000 | 1,272,000 | 3,672,000 |
| 3 | 8,2000,000 | 2,400,000 | 984,000 | 3,384,000 |
| 4 | 6,800,000 | 2,400,000 | 816,000 | 3,216,000 |
| 5 | 2,400,000 | 2,400,000 | 288,000 | 2,688,000 |
| Total | | 12,000,000 | 4,800,000 | 16,800,000 |



APPENDIX V FORECAST STAFFING SCHEDULE (1ST OPERATIONAL YEAR) N'000

| POSITION | No | Unit Scale | Scale/ Month | Scale / Year |
|---------------------------------------|----|------------|--------------|--------------|
| DIRECT LABOUR | | | | |
| Factory Manager | 1 | 80 | 80 | 960 |
| Production Manager | 1 | 60 | 60 | 720 |
| Unskilled labour | 8 | 30 | 240 | 2,880 |
| Sub total | 10 | 90 | 120 | 4,560 |
| | | | | |
| INDIRECT LABOUR | | | | |
| Accounts/ Admin | 1 | 50 | 50 | 600 |
| Marketing Officer | 2 | 40 | 80 | 960 |
| Driver | 1 | 40 | 40 | 480 |
| Sub total | 4 | 130 | 170 | 2,040 |
| Total on staff (1 st year) | 14 | 220 | 290 | 6,600 |

APPENDIX VI ESTIMATE OF ANNUAL DEPRECIATION ALLOWANCE

N'

| ITEMS | INITIAL VALUE | DEPRECIATION (20%) |
|--------------------------|---------------|--------------------|
| Machinery and Equipments | 4,692,800 | 938,560 |
| Utility Equipments | 290,000 | 58,000 |
| Office Equipments | 200,000 | 40,000 |
| Vehicle | 4,400,000 | 440,000 |
| TOTAL | 9,582,800 | 1,476,560 |

APPENDIX VII ESTIMATION OF ADMINISTRATIVE / OVERHEAD EXPENSES

N'

| COST ITEM | YEAR 1 | YEAR 2 | YEAR 3 | YEAR 4 | YEAR 5 |
|--------------------------|--------|--------|--------|--------|--------|
| Selling and Distribution | 1,800 | 2,180 | 2,560 | 3,016 | 3,016 |
| Fuel / Diesel | 3,800 | 4,680 | 5,560 | 6,616 | 6,616 |
| Repairs & Servicing | 1,800 | 1,980 | 2,160 | 2,376 | 2,376 |
| Packaging materials | 1,800 | 2,080 | 3,360 | 3,696 | 3,696 |
| TOTAL | 9,200 | 10,920 | 12,640 | 14,704 | 14,704 |



APPENDIX VIII ESTIMATION OF PRODUCTION AND OPERATION COSTS

N'

| Item | Units | @ | Qty/ | Prod. | Prod. Cost/ | Prod. Cost/ |
|--------------------|-------|-------|------|-------------|-------------|-------------|
| | | | day | Cost/ day\$ | month\$ | Year |
| Direct Costs | | | | | | |
| Lignite | Kgs | 1,560 | 800 | 1,248,000 | 32,448,000 | 389,376,000 |
| Sucrose | Kgs | 1,260 | 100 | 126,000 | 3,276,000 | 39,312,000 |
| Chemical nutrients | Kgs | 1,050 | 100 | 105,000 | 2,730,000 | 32,760,000 |
| Sub total | | 3,870 | | 1,479,000 | 38,454,000 | 461,448,000 |

APPENDIX IX ESTIMATION OF RAW MATERIAL/PRODUCTION COST AND SALES

| Year of Commercial | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|--------------------------------|-------------|-------------|-------------|-------------|-------------|
| Production | | | | | |
| % Capacity Utilization | 60% | 70% | 80% | 90% | 90% |
| 1. Output | | | | | |
| Bio-fertilizers | 468,000 | 491,400 | 514,800 | 566,280 | 566,280 |
| Total output | 468,000 | 491,400 | 514,800 | 566,280 | 566,280 |
| | | | | | |
| 2. Cost of Production | N' | N' | N' | N' | N' |
| Bio-fertilizers @ N986 (kgs) | 461,448,000 | 484,520,400 | 507,592,800 | 558,352,080 | 558,352,080 |
| Total cost of production | 461,448,000 | 484,520,400 | 507,592,800 | 558,352,080 | 558,352,080 |
| | | | | | |
| 3. <u>SALES</u> | | | | | |
| Bio-fertilizers @ N1,150 (kgs) | 538,200,000 | 565,110,000 | 592,020,000 | 651,222,000 | 651,222,000 |
| TOTAL SALES/ TURNOVER | 538,200,000 | 565,110,000 | 592,020,000 | 651,222,000 | 651,222,000 |



APPENDIX X FORECAST INCOME STATEMENT (PROFIT & LOSS ACCOUNT)

| Year of commercial | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|-------------------------------|-------------|-------------|-------------------------|-------------|-------------|
| operation | | | | | |
| % Capacity Utilization | 60% | 70% 80% | | 90% | 90% |
| 1. SALES | N' | N' | N' | N' | N' |
| Gross Sales | 538,200,000 | 565,110,000 | 592,020,000 | 651,222,000 | 651,222,000 |
| VAT @ 5% | 26,910,000 | 28,255,500 | 29,601,000 | 32,561,100 | 32,561,100 |
| Net Revenue | 511,290,000 | 536,854,500 | 562,419,000 | 618,660,900 | 618,660,900 |
| | | | | | |
| 2. OPERATION COST | | | | | |
| Cost of Raw materials | | | | | |
| consumed | 461,448,000 | 484,520,400 | 507,592,800 | 558,352,080 | 558,352,080 |
| Staff and labour | 6,600,000 | 7,260,000 | 7,986,000 8,785,000 | | 8,785,000 |
| Admin. & Overhead Expenses | 9,200,000 | 10,920,000 | 12,640,000 14,704,000 | | 14,704,000 |
| Depreciation | 1,476,560 | 1,476,560 | 1,476,560 | 1,476,560 | 1,476,560 |
| Total Operating Cost | 478,724,560 | 504,176,960 | 529,695,360 583,317,640 | | 583,317,640 |
| | | | | | |
| 3. OTHER COSTS | | | | | |
| Interest on Term Loan (12%) | 1,440,000 | 1,272,000 | 984,000 | 816,000 | 288,000 |
| Loan Repayment | 2,400,000 | 2,400,000 | 2,400,000 | 2,400,000 | 2,400,000 |
| Total (Other Costs) | 482,564,560 | 507,848,960 | 533,079,360 | 586,533,640 | 586,005,640 |
| | | | | | |
| Profit Before Tax | 28,725,440 | 29,005,540 | 29,339,640 | 32,127,260 | 32,655,260 |
| Corporate Tax @ 12% | 3,447,052.8 | 3,480,664.8 | 3,520,756.8 | 3,855,271.2 | 3,918,631.2 |
| Profit after tax (NET PROFIT) | 25,278,387 | 25,524,875 | 25,818,883 | 28,271,989 | 28,736,629 |
| | | | | | |
| % Return on Sales | 0.04944041 | 0.047545238 | 0.045906847 | 0.045698684 | 0.046449725 |
| % Return on Equity | 3.69666507 | 3.732711022 | 3.775706213 | 4.134443885 | 4.202391988 |
| % Return on Investment | 1.918610725 | 1.93731898 | 1.959633968 | 2.145822885 | 2.181088714 |



APPENDIX XI

FORECAST HIGH RATE AND LOW RATE COMPUTATION

| Year | C/F | DF 12% | NPV | |
|---------------------|--------------|--------|---------------|--|
| | N' | | N' | |
| 0 | (13,175,360) | 1 | (13,175,360) | |
| 1 | 25,278,387 | 0.893 | 22,573,599.59 | |
| 2 | 25,524,875 | 0.797 | 20,343,325.38 | |
| 3 | 25,818,883 | 0.712 | 18,383,044.7 | |
| 4 | 28,271,989 | 0.636 | 17,980,985 | |
| 5 | 28,736,629 | 0.567 | 16,293,668.64 | |
| Total Profit | 133,630,763 | | 95,574,623 | |
| Average Profit | 26726152.6 | | | |

| Year | C/F | DF 60% | NPV | |
|---------------------|--------------|--------|---------------|--|
| | N' | | N' | |
| 0 | (13,175,360) | 1 | (13,175,360) | |
| 1 | 25,278,387 | 0.625 | 15,798,991.88 | |
| 2 | 25,524,875 | 0.3906 | 9,970,016.175 | |
| 3 | 25,818,883 | 0.2441 | 6,302,389.34 | |
| 4 | 28,271,989 | 0.1526 | 4,314,305.521 | |
| 5 | 28,736,629 | 0.0954 | 2,741,474.407 | |
| Total Profit | 133,630,763 | | 39,127,177 | |
| Average Profit | 26,726,152.6 | | | |



APPENDIX XII FORECAST IRR AND ARR COMPUTATION

$$IRR = a + (A)*(b-a)$$

A+B

Where

a = 12%

b= 60%

A = 95,574,623

B= 39,127,177

95,574,623 + 39,127,177

12%+ 34.2

46%

ARR = <u>Estimated Average Profit</u> x 100

Estimated initial investment

$$ARR = 26,726,152.6 \times 100$$

13,175,360

203%



APPENDIX XIII CASH FLOW PROJECTION

| Year of Comm. Production | Year o | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|-------------------------------|------------|-------------|-------------|-------------|-------------|-------------|
| % Capacity Utilization | | 60% | 70% | 80% | 90% | 90% |
| A) CASH RECEIPTS | N' | N' | N' | N' | N' | N' |
| Equity Capital | 1,175,360 | - | - | - | - | - |
| Term Loan | 12,000,000 | - | - | - | - | - |
| Gross Revenue | - | 511,290,000 | 536,854,500 | 562,419,000 | 618,660,900 | 618,660,900 |
| Total Receipts | 13,175,360 | 511,290,000 | 536,854,500 | 562,419,000 | 618,660,900 | 618,660,900 |
| 3) CASH PAYMENTS | | | | | | |
| Capital Payment | | | | | | |
| Machinery & Equipments | 4,692,800 | - | - | - | - | - |
| Utility Equipments | 290,000 | - | - | - | - | - |
| Office Equipments | 200,000 | - | - | - | - | - |
| Vehicle | 4,400,000 | - | - | - | - | - |
| TOTAL | 9,582,800 | - | - | - | - | - |
| (ii) Operating Expenses | | | | | | |
| Depreciation | - | 1,476,560 | 1,476,560 | 1,476,560 | 1,476,560 | 1,476,560 |
| Change in working capital | 3,592,560 | 477,248,000 | 502,700,400 | 528,218,800 | 581,841,080 | 581,841,080 |
| Sub total | 3,592,560 | 478,724,560 | 504,176,960 | 529,695,360 | 583,317,640 | 583,317,640 |
| (iii) Financial Expenses | | | | | | |
| Repayment of Term Loan | - | 2,400,000 | 2,400,000 | 2,400,000 | 2,400,000 | 2,400,000 |
| Interest on Term Loan | - | 1,440,000 | 1,272,000 | 984,000 | 816,000 | 288,000 |
| Value Added Tax | - | 26,910,000 | 28,255,500 | 29,601,000 | 32,561,100 | 32,561,100 |
| Corporate Tax | - | 3,447,052.8 | 3,480,664.8 | 3,520,756.8 | 3,855,271.2 | 3,918,631.2 |
| Sub total | - | 34,197,053 | 35,408,165 | 36,505,757 | 39,632,371 | 39,167,731 |
| Total cash payment (ii)-(iii) | 3,592,560 | 444,527,507 | 468,768,795 | 493,189,603 | 543,685,269 | 544,149,909 |
| Net cash flow c/f | 3,298,600 | 444,527,507 | 468,768,795 | 493,189,603 | 543,685,269 | 544,149,909 |



APPENDIX XIV
BALANCE SHEET PROJECTION

| Year of comm. Operation | Year o | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|-------------------------------|------------|---------------|---------------|---------------|---------------|---------------|
| ASSETS | N'ooo | N'000 | N'000 | N'000 | N'000 | N'000 |
| (i) Fixed assets | | | | | | |
| Machinery and Equipments | 4,692,800 | - | - | - | - | - |
| Utility Equipments | 290,000 | | | | | |
| Office Equipments | 200,000 | - | - | - | - | - |
| Vehicle | 4,400,000 | - | - | - | - | - |
| Value at Acquisition | 9,582,800 | 9,582,800 | 9,582,800 | 9,582,800 | 9,582,800 | 9,582,800 |
| Less Cumulated Depreciation | - | 1,916,560 | 3,833,120 | 5,749,680 | 7,666,240 | 9,582,800 |
| Net fixed assets | 9,582,800 | 7,666,240 | 5,749,680 | 3,833,120 | 1,916,560 | 0 |
| (ii)Current Assets/ liability | | | | | | |
| Stock of Raw Materials | 2,400,000 | 32,705,536 | 59,090,576 | 133,675,216 | 62,698,269 | 65,453,868 |
| Debtors /prepayment | - | 6,453,000 | 7,098,000 | 8,308,000 | 9,139,000 | 10,653,000 |
| Bank and Cash Balances | 1,192,560 | 4,150,024 | 5,160,031 | 6,170,539 | 7,180,674 | 7,180,741 |
| Creditor / accruals | - | (9,074,000) | (11,039,000) | (13,947,000) | (15,013,000) | (18,785,000) |
| Company Tax | - | (3,447,052.8) | (3,480,664.8) | (3,520,756.8) | (3,855,271.2) | (3,918,631.2) |
| Net current assets | 3,592,560 | 30,787,507 | 56,828,942 | 130,685,998 | 60,149,672 | 60,583,978 |
| TOTAL NET ASSETS | 13,175,360 | 38,453,747 | 62,578,622 | 134,519,118 | 62,066,232 | 60,583,978 |
| (ii) <u>FINANCED BY</u> | | | | | | |
| Equity Capital | 1,175,360 | 1,175,360 | 1,175,360 | 1,175,360 | 1,175,360 | 1,175,360 |
| P&L | - | 25,278,387 | 25,524,875 | 25,818,883 | 28,271,989 | 28,736,629 |
| Retained Profit | - | - | 25,278,387 | 25,524,875 | 25,818,883 | 28,271,989 |
| SHAREHOLDERS FUND | 1,175,360 | 26,453,747 | 51,978,622 | 52,519,118 | 55,266,232 | 58,183,978 |
| Long Term Loan | 12,000,000 | 12,000,000 | 10,600,000 | 8,2000,000 | 6,800,000 | 2,400,000 |
| TOTAL EQUITY & LIABILITY | 13,175,360 | 38,453,747 | 62,578,622 | 134,519,118 | 62,066,232 | 60,583,978 |

