PREFEASIBILITY STUDY ON
SETTING UP BEEHIVES (APICULTURE) IN NIGERIA

DEVELOPED BY
STARTUP BUSINESS FOUNDATION

FREE DOWNLOAD

Register & Download

@
Website: www.startupbizfoundation.org
Email: info@startupbizfoundation.org
Tel: +234832686671,

STARTUP
BUSINESS FOUNDATION

DISCLAIMER

The information contained herein has been obtained from sources reliable to Startup Business Foundation. Startup Business Foundation does not warrantees to the accuracy, completeness or adequacy of such information. Startup Business Foundation shall have no liability of errors or inadequacies in the information contained herein or for interpretations thereof. Every effort has been made to trace owners of the copyright material included in the book. The publishers would be grateful for any omissions brought to their notice for acknowledgements in future editions of the study. No entity of Startup Business Foundation shall be responsible for any loss whatsoever, sustained by any person who relies on this material. The material in this publication is copyrighted. No parts of this publication shall be reproduced, stored or distributed in any form or by any means either on paper or electronic without express written notice and approval of Startup Business Foundation.

ACKNOWLEDGMENT

Startup Business Foundation is thankful to all organizations and individuals who have helped in several ways in preparation of this prefeasibility study.

We also wish to extend our gratitude to all those who reviewed the content and provided valuable inputs for improving the quality, coherence, and content presentation of this prefeasibility study.

ABOUT THIS REPORT

This prefeasibility study is designed to provide potential and startups entrepreneurs' valuable information on setting up beehives business 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 beehives project 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.

TABLE OF CONTENT

APPENIDIES

PART I
EXECUTIVE SUMMARY

This particular prefeasibility study is on setting up beehives for production of honey and bee wax in the most suitable part of Nigeria.

Honey is the most popular natural sweetener in the world and global trade in bee product is worth millions of dollars every year.

There is high demand for honey for home consumption, pharmaceutical use in making drugs and in most instances it has replaced the sugar intake among people with health complications. Some beekeepers salvage the combs to extract wax for making candles or at times it is mixed with maize flour to make ice-cream cones.

Despite the increasing demand for honey and other bee products, such as bee wax (for making cosmetics, antiseptics, and for floor, furniture and shoe polish), bee cake, bee pollen, royal jelly, propolis, and bee bread, among others, local beekeepers are finding it difficult to meet the demand for original, pure honey and other bee products.

This project is a rural micro agro enterprise and would be best setup in rural or semi rural areas in any part of Nigeria.

The installed production capacity is estimated at 31,200kg per annum working 312 day annually, at 60% capacity utilization.

1.1 SUMMARY OF TOTAL PROJECT COST

S/N	DESCRIPTION	COST INCURRED	COST TO BE INCURRED	TOTAL
1	Land & Building	-	1,200,000	1,200,000
2	Machinery & Equipments	-	1,383,804	1,738,000
3	Utility Equipment	-	190,000	190,000
4	Vehicle	-	1,000,000	1,000,000
	Total capital cost	-	**3,773,804**	**4,128,000**
6	Working capital	-	800,000	800,000
7	Contingencies & preliminary	-	492,800	492,800
	Total Project cost	-	**5,066,604**	**5,420,800**

1.3 FINANCIAL ACCOUNTING RATIOS ANALYSIS

PERFORMANCE RATIOS AVERAGES

(a) Return on Profit =7%
(b) Return on Equity =807%
(c) Return on Investment =268%
(d) Positive NPV = ₦56,404,701
(e) IRR =46.5%
(f) ARR =268 %
(g) Payback period = 8 months

PART II
MARKET ANALYSIS

2.1 INTRODUCTION

Original honey is of high demand in Nigeria for domestic use. The domestic demand for original natural is so much that Nigeria has not meet it and so, nobody is talking about the export the great potentials that lies in the export of honey.

2.2 MARKET AREA ANALYSIS

According to the USAID beekeeping pollination project, Nigeria can generate over $10 billion from local and international trade in honey and other hive products as domestic consumption currently stands at 380,000 metric ton. On the other hand, the global monetary value of trade in honey alone stands at about $4.5 million. Apart from the present high and still growing demand, bee products are highly priced globally, especially in non-producer countries. Nigeria farmers generally suffer a lot from deficiencies in production, storage, handling and packaging which makes their output unfit for the export market.

Honey production has been identified as having the potential to provide employment and reduce poverty among rural households in Nigeria.

2.3 INDUSTRY ANALYSIS

The beekeeping industry when fully developed can create thousands of jobs and a dozen new products. Honeybees are quite valuable as they contribute to the successes and development of agriculture and other industries. Nigeria's potential for local honey production is high and is a major export commodity. The development of beekeeping in Nigeria is important to meet local demand and contribute to the global demand for apiary products. It has capacity to replace oil as the nation's foreign exchange earner. Nigerian's need to recognized its huge potential and explore this unexplored avenue of sure revenue generation and a great return for investment.

2.4 DEMAND AND SUPPLY ANALYSIS

Despite the increasing demand for honey and other bee products, such as bee wax (for making cosmetics, antiseptics, and for floor, furniture and shoe polish), bee cake, bee pollen, royal jelly, propolis, and bee bread, among others, local beekeepers are finding it difficult to meet the demand for original, pure honey and other bee products.

The value of beekeeping to the economy is far greater than the value of the honey, which is harvested. This is because honeybees are the most efficient pollinators for several crops and environmentally important non-crop plants. Experts say that honeybees contribute an estimated $200 billion to the global economy through crop pollination and production of honey, beeswax and other bee products.

PART IV
TECHNICAL ANALYSIS

3.1 PRODUCT DESCRIPTION

Honey is the natural sweet substance, produced by honeybees from the nectar of plants or from secretions of living parts of plants, or excretions of plant-sucking insects on the living parts of plants, which the bees collect, transform by combining with specific substances of their own, deposit, dehydrate, store and leave in honeycombs to ripen and mature.

Honey is the most popular natural sweetener in the world and global trade in bee product is worth millions of dollars every year. Due to its diverse use, the worldwide consumption of honey is so huge; its supply barely matches its demands.

3.2 SUITABLE LOCATION

The bee production is a rural micro enterprise activity. It should be sited close to source of nectar is latest within 1km radius. This is to conserve bee energy and increase honey production. Avoid sitting apiary in termite-infested areas and water logged areas.

3.3 PRODUCTION CAPACITY

The installed production capacity is estimated at 31,200kg per annum working 312 day annually, at 60% capacity utilization. The success of this project is on the ability of the entrepreneur to meet production and sales capacity as projected below.

3.4 PROCESS DESCRIPTION

Bee hives are opened after the bees have been smoked out using a smoke pump, honeycombs are pressed by hand. Honey is separated from the wax using pressing machines to produce better quality honey. Honey from a honeycomb is extracted, warmed, strained and bottled.

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.

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 3,210 metric tonnes 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 56,404,701**

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 **47%.** 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 **268%.**

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	Acres of Land	3	1,200,000	1,200,000
	Sub total	**3**	**1,200,000**	**1,200,000**
	MACHINERY & EQUIPMENTS			
2	Centrifuge Machine	1	1,358,400	1,358,400
3	Wooden beehives	50	6,684	334,400
4	Smoker pumps	1	10,320	10,400
5	Buckets	5	1,200	6,000
6	Hive tools	4	600	2,400
7	Protective wears	4	6000	24,000
8	Filtering sieves	4	600	2,400
	Sub total		**1,383,804**	**1,738,000**
	UTILITY EQUIPMENT			
9	Generator	1	150,000	150,000
10	Other utility accessories	1	40,000	40,000
	Sub total	**2**	**190,000**	**190,000**
	VEHICLE			
11	Shuttle Bus	1	1,000,000	1,000,000
	Sub total	**1**	**1,000,000**	**1,000,000**
	Total capital cost		3,773,804	4,128,000
12	Working capital		800,000	800,000
13	Contingencies & preliminary		492,800	492,800
	Total Project cost		**5,066,604**	**5,420,800**

APPENDIX II
ESTIMATION OF WORKING CAPITAL REQUIREMENT

N'

Year of Commercial Operation	**2 Months**
% Capacity Utilization (Inventory)	**60%**
1 week stock of raw material	550,000
1 Day stock of finished products	150,000
Work in Progress	100,000
Bank/ Cash (preoperational expenses)	-
Working capital	**800,000**

APPENDIX III
FINANCING PLAN

₦

DESCRIPTION	EXISTING	PROPOSED	TOTAL
Equity	**1,420,800**		**1,985,760**
Term loan from	-	4,000,000	**4,000,000**
Total project cost	**1,985,760**	**4,000,000**	**5,420,800**
% Contribution	**15%**	**75%**	**100%**

APPENDIX IV
TERM LOAN REPAYMENT SCHEDULE

LOAN AMOUNT: 4,000,000 (Four Million Naira)
TYPE : ANY LOCAL AVAILABLE SME FUND
INTEREST RATE USED: 12%
REPAYMENT: 5 YEARS EQUAL INSTALLMENT (Annually)

YEAR	OPENING BALANCE	REPAYMENT	INTEREST DUE	TOTAL YEAR INTEREST
1	4,000,000	800,000	480,000	1,280,000
2	3,200,000	800,000	384,000	1,184,000
3	2,400,000	800,000	288,000	1,088,000
4	1,6000,000	800,000	192,000	992,000
5	800,000	800,000	96,000	896,000
Total		**4,000,000**	**1,440,000**	**5,440,000**

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

POSITION	No	Unit Scale	Scale/ Month	Scale / Year
DIRECT LABOUR				
Farm Manager	1	60	60	720
Semi-skilled labour	4	30	120	1,440
Sub total	**5**	**90**	**120**	**2,160**
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 (1st year)	**10**	**220**	**290**	**4,200**

APPENDIX VI
ESTIMATE OF ANNUAL DEPRECIATION ALLOWANCE
N'

ITEMS	INITIAL VALUE	DEPRECIATION (20%)
Machinery and Equipments	1,738,000	347,600
Utility Equipments	190,000	38,000
Vehicle	1,000,000	200,000
TOTAL	**2,928,000**	**585,600**

APPENDIX VII
ESTIMATION OF ADMINISTRATIVE / OVERHEAD EXPENSES
N'

COST ITEM	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
Selling and Distribution	1,328,400	1,394,820	1,461,240	1,534,302	1,534,302
Cleaning and Toiletries	226,800	238,140	249,480	261,954	261,954
Utilities (Power & water)	1,904,400	1,999,620	2,094,840	2,199,582	2,199,582
Miscellaneous	900,000	945,000	990,000	1,039,500	1,039,500
TOTAL	**4,359,600**	**4,577,580**	**4,795,560**	**5,035,338**	**5,035,338**

APPENDIX VIII
ESTIMATION OF PRODUCTION AND OPERATION COSTS

N'

Cost Item	Units	@	Qty/ day	Prod. cost	Prod. Cost/ month	Prod. Cost/
Bee wax	Kgs	54,000	10	540,000	14,040,000	168,480,000
Sub total			**10**	**540,000**	**14,040,000**	**168,480,000**

APPENDIX IX
ESTIMATION OF RAW MATERIAL/PRODUCTION COST AND SALES

Year of Commercial Production	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
% Capacity Utilization	**60%**	**70%**	**80%**	**90%**	**90%**
1. Output					
Bee wax (kgs)	31,200	34,320	37,440	41,180	41,180
Total output	**31,200**	**34,320**	**37,440**	**41,180**	**41,180**
2. Cost of Production	**N'**	**N'**	**N'**	**N'**	**N'**
Honey @ N54,000 (kgs)	168,480,000	185,328,000	202,176,000	222,372,000	222,372,000
Total cost of production	**168,480,000**	**185,328,000**	**202,176,000**	**222,372,000**	**222,372,000**
3. SALES					
Honey @ N65,000 (kgs)	193,440,000	212,784,000	232,128,000	255,316,000	255,316,000
TOTAL SALES/ TURNOVER	**193,440,000**	**212,784,000**	**232,128,000**	**255,316,000**	**255,316,000**

APPENDIX X

FORECAST INCOME STATEMENT (PROFIT & LOSS ACCOUNT)

Year of commercial operation	Year 1	Year 2	Year 3	Year 4	Year 5
% Capacity Utilization	**60%**	**70%**	**80%**	**90%**	**90%**
1. SALES	**N'**	**N'**	**N'**	**N'**	**N'**
Gross Sales	202,800,000	223,080,000	243,360,000	267,670,000	267,670,000
VAT @ 5%	10,140,000	11,154,000	12,168,000	13,383,500	13,383,500
Net Revenue	**192,660,000**	**211,926,000**	**231,192,000**	**254,286,500**	**254,286,500**
2. OPERATION COST					
Cost of Raw materials consumed	168,480,000	185,328,000	202,176,000	222,372,000	222,372,000
Staff and labour	4,200,000	4,410,000	4,620,000	4,851,000	4,851,000
Admin. & Overhead Expenses	4,359,600	4,577,580	4,795,560	5,035,338	5,035,338
Depreciation	585,600	585,600	585,600	585,600	585,600
Total Operating Cost	**177,625,200**	**194,901,180**	**212,177,160**	**232,843,938**	**232,843,938**
3. OTHER COSTS					
Interest on Term Loan (12%)	960,000	768,000	576,000	384,000	192,000
Loan Repayment	1,60,000	1,60,000	1,60,000	1,60,000	1,60,000
Total (Other Costs)	**178,585,200**	**195,669,180**	**212,753,160**	**233,227,938**	**233,035,938**
Profit Before Tax	14,074,800	16,256,820	18,438,840	21,058,562	21,250,562
Corporate Tax @ 12%	1,688,976	1,950,818.4	2,212,660.8	2,527,027	2,550,067
Profit after tax (NET PROFIT)	**12,385,824**	**14,306,002**	**16,226,179**	**18,531,535**	**18,700,495**
% Return on Sales	0.064	0.068	0.070	0.073	0.074
% Return on Equity	6.24	7.20	8.17	9.33	9.42
% Return on Investment	2.07	2.39	2.71	3.10	3.12

APPENDIX XI

FORECAST HIGH RATE AND LOW RATE COMPUTATION

Year	C/F	DF 12%	NPV
	N'		N'
0	(5,985,760)	1	
1	12,385,824	0.893	11,060,540
2	14,306,002	0.797	11,401,883
3	16,226,179	0.712	11,553,039
4	18,531,535	0.636	11,786,056
5	18,700,495	0.567	10,603,180
Total Profit	**80,150,035**		**56,404,701**
Average Profit	**16,030,007**		

Year	C/F	DF 60%	NPV
	N'		N'
0	(5,985,760)	1	
1	12,385,824	0.6250	7,741,140
2	14,306,002	0.3906	5,587,924
3	16,226,179	0.2441	3,960,810
4	18,531,535	0.1526	2,827,912
5	18,700,495	0.0954	1,784,027
Total Profit	**80,150,035**		**21,901,814**
Average Profit	**16,030,007**		

APPENDIX XII
FORECAST IRR AND ARR COMPUTATION

$$IRR = a + \frac{(A)}{A+B} * (b-a)$$

Where

a = 12%

b= 60%

A = 56,404,701

B= 21,901,814

$$12\% + \frac{56,404,701}{56,404,701 + 21,901,814} (60-12)$$

12%+ 34.6

47%

$$ARR = \frac{\text{Estimated Average Profit}}{\text{Estimated initial investment}} \times 100$$

$$ARR = \frac{16,030,007}{5,985,760} \times 100$$

268%

APPENDIX XIII
CASH FLOW PROJECTION

Year of Comm. Production	Year 0	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	1,985,760	-	-	-	-	-
Term Loan	4,000,000	-	-	-	-	-
Gross Revenue		192,660,000	211,926,000	231,192,000	254,286,500	254,286,500
Total Receipts	**5,420,800**	**192,660,000**	**211,926,000**	**231,192,000**	**254,286,500**	**254,286,500**
B) CASH PAYMENTS						
Capital Payment						
Machinery & Equipments	1,738,000	-	-	-	-	-
Utility Equipment	190,000					
Vehicle	1,000,000	-	-	-	-	-
TOTAL	**2,928,000**	-	-	-	-	-
(ii) Operating Expenses						
Depreciation	-	585,600	585,600	585,600	585,600	585,600
Change in working capital	2,492,800	177,039,600	194,315,580	211,591,560	232,258,338	232,258,338
Sub total	**2,492,800**	**177,625,200**	**194,901,180**	**212,177,160**	**232,843,938**	**232,843,938**
(iii) Financial Expenses						
Repayment of Term Loan	-	1,60,000	1,60,000	1,60,000	1,60,000	1,60,000
Interest on Term Loan	-	960,000	768,000	576,000	384,000	192,000
Value Added Tax	-	10,140,000	11,154,000	12,168,000	13,383,500	13,383,500
Corporate Tax	-	1,688,976	1,950,818.4	2,212,660.8	2,527,027	2,550,067
Sub total	-	12,788,976	13,872,818.4	14,956,660.8	16,294,527	16,125,567
Total cash payment (ii)-(iii)	**2,492,800**	**164,836,224**	**181,028,362**	**197,220,499**	**216,549,411**	**216,718,371**
Net cash flow c/f	2,492,800	164,836,224	181,028,362	197,220,499	216,549,411	216,718,371

APPENDIX XIV
BALANCE SHEET PROJECTION

Year of comm. Operation	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
ASSETS	**N'000**	**N'000**	**N'000**	**N'000**	**N'000**	**N'000**
(i) Fixed assets						
Machinery and Equipments	1,738,000	-	-	-	-	-
Utility equipment	190,000					
Vehicle	1,000,000	-	-	-	-	-
Value at Acquisition	-	2,928,000	2,928,000	2,928,000	2,928,000	2,928,000
Less Cumulated Depreciation	-	585,600	1,171,200	1,756,800	2,342,400	2,928,000
Net fixed assets	**2,928,000**	**2,342,400**	**1,756,800**	**1,171,200**	**585,600**	**0**
(ii)Current Assets/ liability						
Stock of Raw Materials	800,000	18,189,136	32,852,573	37,427,863	40,978,227	45,519,116
Debtors /prepayment	-	1,453,000	2,098,000	3,308,000	4,139,000	5,653,000
Bank and Cash Balances	1,692,800	4,150,024	5,160,031	6,170,539	7,180,674	7,180,741
Creditor / accruals	-	(6,074,000)	(8,039,000)	(10,947,000)	(12,013,000)	(15,785,000)
Company Tax	-	(1,688,976)	(1,950,818.4)	(2,212,660.8)	(2,527,027)	(2,550,067)
Net current assets	**2,492,800**	**16,029,184**	**30,120,786**	**33,746,741**	**37,757,874**	**40,017,790**
TOTAL NET ASSETS	**5,420,800**	**18,371,584**	**31,877,586**	**34,917,941**	**38,343,474**	**40,017,790**
(ii) FINANCED BY						
Equity Capital	1,985,760	1,985,760	1,985,760	1,985,760	1,985,760	1,985,760
P&L	-	12,385,824	14,306,002	16,226,179	18,531,535	18,700,495
Retained Profit	-	-	12,385,824	14,306,002	16,226,179	18,531,535
SHAREHOLDERS FUND	**1,721,800**	**14,371,584**	**28,677,586**	**32,517,941**	**36,743,474**	**39,217,790**
Long Term Loan	4,000,000	4,000,000	3,200,000	2,400,000	1,600,000	800,000
TOTAL EQUITY & LIABILITY	**5,420,800**	**18,371,584**	**31,877,586**	**34,917,941**	**38,343,474**	**40,017,790**