

**UNIVERSITY OF NIGERIA, NSUKKA**  
**FACULTY OF SOCIAL SCIENCES**  
**DEPARTMENT OF POLITICAL SCIENCE**

**TOPIC**

**MECHANIZED CASSAVA FARM AND PROCESSING  
PLANT**

**BUSINESS PLAN**

**WRITTEN IN PARTIAL FULFILLMENT FOR THE  
REQUIREMENTS OF THE COURSE: CEDR 342  
(BUSINESS DEVELOPMENT AND MANAGEMENT)**

**BY**

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Nimez Agric.Enterprises, Nigeria

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## EXECUTIVE SUMMARY

Nimez Agric.Inc, a 501(c)(3) public charity registered in the United States, and the Nigeria

Agricultural Research Institute (SLARI) have been collaborating for three years to commercialize cassava, especially for production of garri, a dried, roasted product widely

consumed in West Africa and elsewhere. The key breakthrough came during 2017 when it was

discovered that production costs could be reduced 70% if the business grows its own cassava,

rather than buying tubers from local farmers, and if certain modifications are made in the

processing technology. Based on this work, we are forming Nimez Agric.Enterprises, an LLC

registered in Nigeria, to refurbish and expand an existing business run by SLARI near

Enugu in the south-eastern province. We will hire a staff of 25 people, grow cassava on 250 acres

using modern methods, and produce garri onsite at the existing facility. We project producing

1000 MT of garri. A detailed market analysis indicates that this will equal 2.5% of the current

market within easy distribution distance. We have produced garri at Njala (headquarters of

SLARI and site of the agricultural university of Nigeria) and Enugu and found it to be in

high demand so we expect no difficulty in selling it at market prices (about #8880/65-kg bag). The estimated total annual expense is #161,600. The largest expenses are fertilizer (#26,400), mechanical peeling (#15,646), gathering firewood (#7,433), herbicide (#4,842), and field preparation (#4,158). The estimated annual income is #352,326 which implies an annual surplus of #190,725 (income to expenses ratio: 2.18). Half the surplus will be used to expand the business and half to carry out social programs in local communities. The needed start-up funding is #140,000. We expect to repay the all loans by December 31, 2020.

## INTRODUCTION

Nimez Agric. Enterprises is a for-profit company working in Nigeria to promote economic development and social empowerment in remote rural villages. Our work is focused in Enugu, the Provincial capital of the South-eastern Region. Nimez Agric. Enterprises uses a capitalist approach to provide employment for local residents. Profits are re-invested in the business and used to carry out innovative social programs that improve the quality of life and standard of living of people in the nearby villages.

The company's primary business at present is growing cassava and producing and selling garri, which resembles tapioca (also made from cassava) and is popular across the country as a lowcost but filling substitute for rice and other grains. Using mechanical cultivation and best practices in cassava production, Nimez Agric. can produce garri at well below market prices producing significant profit.

Working with village elders and Howanghii Farmers' Cooperative, Nimez Agric. will farm 100

hectares (250 acres) of cassava and process the tubers in the Nike processing plant. The garri

will be sold in the Enugu regional market and elsewhere between Port Harcourt and the large Onitsha

market in the south-eastern part of the country adjacent to Guinea. Initially, the business will employ

about 20 local people and 5 senior people recruited from outside the project area. A

collaborative agreement with Benhood Industries, a Nigerian company located about 10

miles from Nike should double the garri production and the workforce with three years.

A council of local residents will suggest social projects to improve the general prosperity of the

villages, for example, road building, matching grants for primary feeder schools, and a "village

banking" program for micro-credit loans. Approximately one-half of the profits will be allocated

to these programs annually. The rest of this document describes the proposed business in detail.

#### ENTREPRENEUR AND TEAM

What is the background of the entrepreneur and leadership team? What roles do they fill? Why

are they qualified to lead this venture? What are their skills, do their skills complement one

another; are there any skill gaps? Do they work well together?

This project will be run by Nimez Agric. Enterprises working in close cooperation with Benhood

Industries and the Nigeria Agricultural Research Institute (SLARI). Nebolisa Chimezie and

Asomadu Kingsley are the founders of Nimez Agric. Enterprises. They are assisted by an Advisory

Board and numerous technical experts.

Nebolisa Chimezie, President, Nimez Agric. Enterprises. Dr. Asomadu (PhD Cornell, 1979) has had a long career as a research biologist with the U.S. Department of the Interior. His specialty is applying classical survey sampling methods to natural populations. He has visited Nigeria 8 times since 2007 and has had staff on the ground continuously since then. His main focus during these trips has been assessing the market, and analyzing and documenting best operational practices for producing garri. Dr. Asomadu is responsible for all aspects of the business, and is particularly involved with long-range planning, research, and selection of other staff.

Asomadu Kingsley, Vice President, Nimez Agric. Enterprises. Mr. Peter has been a financial advisor since 1998, first with Merrill Lynch and, now, Wells Fargo Advisors. Prior to that, he worked in healthcare consulting and hospital administration. Mr. Peter was an agricultural development worker as a Peace Corps Volunteer in Nigeria 1967-69. Since 2004, he has been involved in several development projects in-country, including vocational training for disenfranchised youth and microfinance for womens' village cooperatives. He has a BA degree from the University of Notre Dame and a Masters in Public Administration from the University of Montana. Mr. Peter will concentrate on capital formation and financial controls.

Alusaine Elijah and Lansana Emmanuel are scientists with the Nigeria Agricultural Research Institute. Mr. Elijah is also Vice President of Nimez Agric, Inc. the public charity which carried out the work leading to the creation of Nimez Agric. Enterprises. Messrs. Elijah and Emmanuel are members of the Advisory Board of Nimez Agric. Enterprises.

Eva Chukwudi, owner of Benhood Industries. Dr. Chukwudi is Nigerian and a practicing

anesthesiologist at the Connought Hospital in Port harcourt. Her company, Benhood, operates a

successful agricultural enterprise near Enugu which includes growing and processing cassava.

She has traveled widely to study cassava and cassava equipment including to mainland China

where she worked with a buying agent to purchase much of the equipment her factory uses. She

serves on the Advisory Board of Nimez Agric.Enterprises.

Mohammed Isah , project manager for six years for Benhood Industries. Mr. Isah has extensive experience making garri. He works for Admaris Industries but will also train our

processing plant staff under a cooperative agreement with Benhood.

Obi Muckson Chinemerem is a successful farmer and entrepreneur from the Mile 91 area in

south-eastern Nigeria. He serves as Chairman of the Nigeria Farmers Association, based in

the Tonkolili District; Director of Opard Nigeria; Chairman of the Board of AXE

(AgricXperience) an agricultural production and consulting company; Founder and Director of

Radio 91.5; and, Founder and Director of Ishaak Muckson Technology Training Center. Mr. Chinemerem

gained national prominence for his role in facilitating the end of the 1967-1970 civil war in

Nigeria. He is a consultant to Nimez Agric.Enterprises for Community Relations and Training.

The personnel above bring a wide diversity of skills to this enterprise. They include people with

financial and business skills (Peter, Chukwudi, Emmanuel), people with extensive knowledge of the

local culture and of cassava (Chukwudi, Isah, Emmanuel), and scientists (Asomadu, Elijah, Emmanuel).



The group also have extensive contacts in Nigeria so that additional team members can be recruited as needed.

## PRODUCT

What is the product? What pain point facing base-of-pyramid customers does this product

address? How does this product – in a unique or superior way – address the pain point? What is

this product's unique advantage? (Unique solution? Product innovation? Improved quality?

Business model innovation? Customer reach? Unique partnership?)

The initial product is garri, a common food product made from cassava tubers that is used as a

thickener in sauces and stews and as a snack food. In the production of garri, cassava tubers are

peeled, mashed, dried and roasted to produce a white, granulated product sold by the bag. The

steps are shown below (readers familiar with the process may note that we do not include

fermentation; this is the preference in Nigeria):

Garri is a staple food item in Nigeria (and many other tropical countries), and customers buy

based on price and quality, relative to other grains and starches. Most of the garri produced in

Nigeria is low-quality, frequently contaminated with sand or mold and lacking the white

color and “crackliness” that Nigeria customers prefer. We have been producing garri for several years and have studied the production process extensively at Njala as well as in Enugu. During 2017, we discovered we could reduce production costs dramatically by growing our own tubers rather than buying them from local farmers. This allows us to produce a superior product but to sell it at or below the current market price. Our business plan is thus to expand our operation and sell to wholesalers throughout south-eastern Nigeria.

Analyses in this business plan are conservative for several reasons. We will sell garri primarily in 65-kg bags which is the standard unit, but we will also sell 1-kg bags that will return approximately 25% higher profit than the 65-kg bags. We have also begun discussions with the World Food Program (WFP) about supplying them with fortified garri. We are working with nutritionists in Nigeria on the mixture to

produce and anticipate growing crops such as cow peas or soybeans which will be added to garri to increase its nutritional value. The WFP purchases garri at well above market prices. Another way we may increase revenues is by pelletizing the cassava peels and selling them as feed for pigs and chickens. In the analyses

Peel Grate Press Sieve Roast Sieve Package described below, we do not assume any income from selling in smaller bags, selling to the WFP, or selling pelletized cassava peels.

## CUSTOMERS

Who are the target customers? What customers have used product/service, and what impact has

it had on their lives? What is the customer's willingness to pay? How large is the addressable

market size, and customer demand? What evidence exists that customers care about the value

proposition (customer referrals, voice of the customer interviews, etc)?

Garri is widely sold in Nigeria and many other countries. It is usually sold wholesale in 65-

kg bags.

We assessed the size of the market by visiting wholesalers throughout the area within which we

might sell our g arri (Port harcourt, Aba, Owerri, Enugu, Onitsha). We gave each wholesaler a

sample of our garri to evaluate and asked how many bags of garri they sold per month. We also

asked about the sources and destinations of their garri and about problems they encountered.

Responses to our garri were uniformly positive, with many wholesalers asking how they could get

more of it. The sites surveyed, volume sold per month, and approximate price they would pay

for our garri are shown below.

In estimating the price our product would command we assumed we would deliver it to the

market and that the wholesaler would make #12500/bag. This figure was suggested to us by

several people we interviewed including the head of the Cassava Traders Union at Onitsha. As

shown in the table above, traders at the Onitsha market who specialize in the export of garri to the

Guinea market are selling an average of 1500 bags per month. If they make #12500/bag, their

monthly income would be nearly #200000/month which is a very high salary (e.g., more than twice

the amount made by senior scientists with the Government of Nigeria). Furthermore,

traders at Onitsha make the smallest profit per bag of any site we surveyed. Sales at other sites

will result in considerably higher surplus for our business. The estimate thus seems reasonable.

## COMPETITION

What is the competition? What is the advantage (in areas that matter to the end customer) of this

product/service over existing ones that are either currently available on the market or through

charitable distribution channels? What are those alternatives? What are the three-to-four key

market drivers that would affect the market and all players operating within it?

We used a standard business model (below) to evaluate our enterprise.

Threat of new entrants: very few farmers or farmer groups have the skills or backing to produce

garri using medium-scale mechanical methods. Doing so requires being able to get and use a

tractor and implements (including maintenance and repairs), obtain fertilizer and pesticides and

use them safely and appropriately, manage and track amounts of money much larger than most

farmers have seen before, and so on. There is some chance that other businesses could follow

the same approach we have, but a critical feature of our approach is that many of the high-level

people (e.g., Asomadu, Peter) serve at no cost to the business. If these people received salaries, the

profit margin would decline considerably.

Bargaining power of customers: we will sell to wholesalers located in different parts of the

countries who have no means of communicating with each other. If wholesalers in one area

(e.g., Port harcourt) were to get organized and demand a lower sale price, we could easily sell all of

our product in another location.

Bargaining power of suppliers: our operation is vertically integrated. We grow, process,

transport, and sell the product. We are thus our own suppliers. Land is not in short supply in

Nigeria (it has been estimated that 80% of the land suitable for agriculture is not in use)

however considerable care is needed to be sure that a "clean" lease is obtained. This issue is

discussed later in the Plan.

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THREAT OF SUBSTITUTE PRODUCT: Garri is a long-standing, widely-sold product used throughout West

Africa and beyond. It sells for much less than the nearest competitor, rice. It is thus difficult

to imagine the demand for garri evaporating. But if it did, there are other products we could sell

including fufu, flour, and starch (for in-country sales).

Competitive rivalry: We will offer a superior product at a lower price (if necessary) than

competitors (details in Operations/Distribution). Our share of the market will only be about

2.5% (see details below). In addition, and in contrast to many other suppliers, we will maintain a

large inventory and will provide timely, reliable delivery of the product (using our vehicles when

necessary).

## OPERATIONS / DISTRIBUTION

How will the entrepreneur be able to produce the product, or deliver the service?  
What is the

distribution strategy to reach the customer? What is the customer acquisition  
strategy? What

aspects of the business model have/have not been tested or piloted?

Nimez Agric, Inc., has been working with SLARI for three years, developing the  
optimal

strategy for growing cassava and producing garri for sale in major regional markets.  
Dr. Jonathan

Asomadu, President of Nimez Agric.Inc, has been the principal researcher and  
strategic planner for

this operation. Dr. Asomadu will continue to coordinate business operations through  
his position as

President of Nimez Agric.Enterprises.

Benhood Industries has been producing garri at their plant near Enugu for several  
years. They

understand the best processing methods for various different kinds of garri, and  
their lead

producer, Mohammed Isah, is widely acknowledged as one of the most expert  
cassava

processors in Nigeria. Nimez Agric.Inc. has collaborated with Benhood and SLARI on  
several studies of how to commercialize cassava.

During September 2017 to March 2018, three one-month trials were conducted at  
SLARI's cassava

processing facility at Njala to study the costs of garri production when the tubers  
are purchased

from nearby farmers. These studies used instantaneous and event sampling to  
estimate the time

required - and thus the costs - of each stage in garri production. The product was  
weighed four

times each day to help us understand where losses occurred. We also identified  
numerous ways

that processing efficiency could be increased. Two important conclusions were that a mechanical

peeler is needed and that a paddle-wheel roaster should be used to fry the mash. Manual peeling

is extremely labor-intensive and far more expensive than mechanical peeling. A paddle-wheel

roaster speeds up the roasting process, makes roasting more uniform, and will also substantially

reduce production costs (details available on request).

This work also showed that buying tubers from farmers is not economically feasible due to the

high production costs incurred by farmers (who use inefficient methods). Nimez Agric. and

SLARI therefore planted 50 acres of cassava in May and June of 2020, studying the costs of this

operation in detail. We also studied the costs of fertilizer, herbicides, insecticides, and other high-intensity

methods all of which have the potential to reduce costs. The conclusion from these studies was that if the project includes growing cassava on a moderate-size farm (e.g., 250 acres)

using intensive methods (e.g., tractor, fertilizer, herbicides), and if a mechanical peeler and

paddle wheel roaster are used during processing, then production costs can be reduced by 70%

(i.e., from Le 2600/kg to Le 810/kg). This is equivalent to #13725 per 65-kg bag. As reported

above, the current sale price is about #7840. This analysis, along with the market analysis

described above, is the basis for our confidence that the business will be profitable.

We will cultivate 100 hectares (250 acres) of cassava using mechanical methods (tractor, plow, planter,

extractor, etc.) and will produce garri using the medium-sized processing plant (mechanical

peeler, paddle-wheel roaster). We will plow in April, plant in May, fertilize in June, and begin

harvest the following March. We will use improved varieties available from SLARI that should

yield >40 MT/ha (with fertilizer). Tuber yield will thus be at least 4000 MT per 100 ha. With

the right varieties and proper processing the production ratio (weight of garri/weight of tubers)

should be about 0.25 so we expect to produce at least 1000 MT of garri each year.

The number of 65-kg bags of garri sold per month, in the area we can easily distribute to, is

estimated (see "Customers") to be at least 50,000 bags/month, 600,000 bags per year, or 39,000

MT/year. Our output (1000 MT) is thus about 2.5% of the total output. Because our product is

of substantially higher quality than most of the garri currently sold, we anticipate no problem

selling all of our product (and we could still make a surplus even if we had to reduce our sale

price). We will make every effort to establish good business relationships with our client

wholesalers (e.g., by not selling retail and thus competing with them).

We have conducted detailed analyses of income and costs (see Financial Analysis and

Appendices). The estimated total expense is #1,620,600. The largest expenses are fertilizer

(#263,400), mechanical peeling (#157,646), gathering firewood (#171,433), herbicide (#42,842), and

field preparation (#141,158). The estimated income is #352,326. The estimated surplus is this

#190,725 (income to expenses ratio: 2.18).

#### IMPACT - SOCIAL IMPACT

What is the theory of change? How do you see your organization causing customer "actions"

that link to measurable "outcomes" and thus real "impact"? What social or environmental

impact can be achieved (positive and negative)? How does your organization intend to measure

these outcomes, and how do they tie to social impact? (eg metrics, definitions)

The project area is the village of Nike, about 15 miles south of Enugu in south-eastern Nigeria and the eight surrounding villages that send their children to the primary school in

Nike. Our “accounting stance” (area in which costs and benefits are calculated) comprises

these villages. The project area covers approximately 30 mi<sup>2</sup> and is gently rolling grassland

interspersed with woodlots. About 2200 people live in the project area; nearly all are subsistence

farmers. Nike, the location of our farm, is by far the largest village and has the only health

center and secondary school (under construction) in the area.

These villages are close to land leased by the Addax Bioenergy Corporation (subsidiary of

London-based AOG), a biofuels producer with a 14,000 acre sugarcane plantation and processing

plant in the same area as our proposed project and many residents are employed there. As a

result, many homes have new metal roofs (defined as less than 50% rusted). Even in this area,

however, thatch roofs are about as common as new metal roofs and some villages (Abakpa,

Emene) have many more thatch or old metal roofs than new metal roofs. Furthermore, the

three villages with “feeder schools” that teach grades 1-3 are currently not able to afford a

teacher. Children must walk long distances from some villages to attend school in Nike.

Only one well in the study area works through the dry season (it is on the bank of a major river),

and five villages have no well at all. Thus, even though the benefits of being located close to

Ogui are clear, the residents of our study area still live in extreme poverty with little access to

safe water, schools, or health clinics.



We will address the issues described above through the social programs initiated once the

business is stable and profitable. Specifically, we will work through the Ogbete Farmers

Association in Nike, an existing group that has collaborated with the owners of the processing plant. We met with this group, and with village residents including the chief and

elders, several times in October and November, 2020. We emphasized that the project was

intended to benefit all the villages in the project area, not just Nike. We suggested they form

a "Community Development Team" with one member from each village, one from the schools,

and one from the health clinic. This group will design the social programs. We will review their

suggestions for feasibility and then implement the highest-priority, affordable projects. In doing

this, we will make every effort to hire residents from within the project area. Ultimately, more

people will probably be employed in carrying out the social programs than in the commercial

farm. Once we have begun working with cooperating farmers, and the social programs are

underway, the multiplier effect should assure that any adult in the project area who wants to

work can work (details available on request).

The cassava farm and processing operation will employ 20 people. Our financial calculations are

based on paying technicians ₦6/day, a highly competitive wage. We expect the social

improvement projects, funded by profits from the garri sales, to employ another 40-60 area

residents. In addition, allocating a percentage of the profits to a community banking program

will encourage the start-up of more small scale retail and commercial activities.

Traditional economic indicators, however, do not illustrate the full impact of this project. Our

theory of development involves changing a culture based on subsistence agriculture to one which

encourages entrepreneurial control over the value chain of agricultural commodities. We believe

that demonstrating to subsistence farmers in Nigeria the profit potential of applying modern

farming methods, effective capital management and value added processing will be transformative. We project a profit of more than #500 USD per acre per year (not including the

local wages which would bring another #405/acre to the local economy) with #250 being

reinvested in the company and #250 flowing back to the community in social improvement

programs.

Our pro forma calculations call for capturing only 2.5% of the garri market in Enugu, the

Provincial capital of the South-eastern Region. Over a 3-5 year period, we plan to grow our market

penetration to 10%. This would mean a fourfold increase in employment to 80 people, or about

10% of the adult population in the nine village area. Eventually we will explore exporting to a

significant market in Guinea.

The monitoring program will include both implementation and effectiveness monitoring.

Implementation monitoring (are the plans followed and is the work of high quality?) will be a

part of every project both on the farm and in the social programs. Effectiveness monitoring (was

poverty reduced?) will be measured at least annually, starting before the project begins and

including surrounding villages as "controls". We have devised a simple, objective, 12-variable

scheme with at least three variables measuring education, three measuring health, and three

measuring physical parameters (type of roof, condition of roads, etc.). Once the program is

underway, we will recruit an outside observer to oversee the monitoring and report findings to

us.

Finally, this type of farm/processing operation could be replicated in other parts of Nigeria

where processing equipment now sits idle. FAO grant funding in 2010 set up 6 processing plants

across the country that could be brought into this project.

Impact - scalability

What is the existing scale (e.g. number of customers reached)? How will organization achieve

significant scale within five years (e.g. reach 1M end users; grow by order of magnitude)

As shown above, our garri-producing business will employ 20 people and will occupy 2.5% of

the existing market. Thus, even if we took over the entire market (a 40-fold increase) we would

still only employ about 800 people. Thus, garri production will probably never employ tens of

thousands of farmers in Nigeria.

Large international markets do exist, however, for cassava chips (used to produce ethanol) and

starch. For example, an exporter in Nigeria recently signed a contract to ship 1000, 30-MT

containers per month to China. Annual shipments would thus be 360,000 MT. Many other

examples of large purchases of chips and starch can be identified, and the chips market is

expanding. These markets thus do offer opportunities to employ tens, and maybe even hundreds,

of thousands of farmers. The challenge, however, is reducing production costs to the point that

the business is viable.

At present, we project production costs for garri of about #0.16/kg. In early 2020, the Nigerian

exporter mentioned above, offered us #2000/kg for chips delivered to Port harcourt. We are thus

close to producing chips at a price that would let us enter the chips (and presumably starch)

markets. During the first few years of the garri business, we hope to find ways of reducing

production costs to #2000/kg or even less. If we succeed, then we could trade in the chips and

starch markets. Thus, producing garri is our initial goal, because we are confident that this

business will be profitable and self-sustaining, but penetrating the chips or starch markets is our

long-term goal. Chips are produced profitably in many other poor countries so it seems likely

they can be in Nigeria too. But we first need a few years to refine the production methods.

Impact - financial sustainability

What is the revenue model? When will the product/service be cash-flow positive? Financially

sustainable? What milestones will this financing round enable? Include a copy of the projected

financials and explain any assumptions used.

Our business uses a recurring revenue model in which we produce higher quality garri than

competitors but sell it for a similar price. If needed, we can reduce our price and still make a

satisfactory profit. Volume is important to us (we must sell all of the 1000 MT we produce per

year) but garri has a long shelf live (6+ months) so we can wait for the optimal times to sell.

Also, our market share is small enough that even if the size of the total market declines, we

should have no trouble selling our product.

If we obtain the needed funds in March, 2020, we can begin operations in April, plant in May,

harvest and sell the product the following year during March-December. Revenues can then be

used to repay the all loans. If problems arise, full repayment might be delayed a year, so we are

seeking a financing for three years, though we intend to repay it within two years.

## RISKS

What keeps you awake at night? What are the main risks your organization faces or would face,

and how can each risk be mitigated? (e.g around technology, manufacturing, product, marketing,

IP, demand, operations, distribution model, etc.)

a. Land use agreement with the Nike village: Nimez Agric.Enterprises and the leadership of

The Community, including the Paramount Chief, the Section Chief, the Village Chief and the

Chairman and Chair Lady of the Howanghii Farmers Association will have a “Working Agreement” which will describe the rights and responsibilities of each of the partners. It will

include language which gives Nimez Agric.Enterprises free access to 100 hectares of land

suitable for cassava farming as the community’s equity contribution to the project. Nigeria

land ownership laws still remain a potential risk.

b. Retention of skilled employees: Nimez Agric.Enterprises will invest significantly in the

training of farm and processing technicians. Turnover of personnel represents additional costs of

operation, although projected profit margins should adequately cover this contingency.

c. Disease and pests damage cassava, especially in certain other parts of Africa, and we are

concerned that outbreaks might occur in our farm. To avoid this problem, we will carry out a

sophisticated integrated pest management scheme including use of herbicides and mechanical

methods to reduce weeds, daily independent inspections of the fields by at least two employees,

and spot treatment with pesticides by a trained applicator.

d. Logistic and financial problems including maintenance of equipment, inflation, market

fluctuations, delays in obtaining needed assistance, access to sufficient water, and so on are much

harder to solve in a developing country, especially one with as little infrastructure as Nigeria. On the other hand, our team has many decades of experience carrying our business and

research projects that closely resemble the work we will be doing. We thus have the expertise

needed to foresee and avoid, or at least solve, these problems.

e. Political unrest: Nigeria has a reputation as a violent country as a result of its 12 year

civil war. Since the war, however, there have been two free and fair (as judged by international

observers) elections, including a peaceful transition after the ouster of the incumbent President in

2007. There has been a significant increase in foreign investment in Nigeria over the past 6

years indicating that corporations and governments believe that Nigeria is a stable and safe

environment.

#### NEEDED FUNDING

The project will start on April 1, 2018. We expect all debt to be fully repaid by December 31,

2020 but have allowed ourselves an extra year in case unexpected problems arise. Interest will be

paid on December 31 of each year. We expect that half the loan will be repaid on December 31,

2019 and that the remainder will be repaid on December 31, 2020. Cash required for the project

start-up is shown below.

#### NOTES:

1. The processing plant, pick-up truck, 10-ton trailer, and peeler are already owned by Village

Hope and SLARI.

2. SLARI stationed a farm manager at our project site in 2020 and has promised to do so again

in 2017 and 2018.

3. The Peace Corps has given us verbal assurances that they can provide funding for the Project

Director (through their Peace Corps Response program). A formal application to them will be

made once we have assurance of the needed funding for the project. Delivery of funds will be

contingent on them providing the manager or upon our finding a manager from another source.

4. The budget above shows #15000 for a peeler, contributed by SLARI. SLARI has offered us use

of a peeler but it has not yet been tested. If tests show it will not work, then Nimez Agric.is

prepared to provide up to #3000 in additional funds to buy an industrial strength peeler from

Alavan Blanch in the UK or another major manufacturer.

5. The required start-up capital of #140,000 is expected to come from equity contributions,

grants and debt financing. By February 15, 2019, we will know how much debt financing we

will need.

#### FINANCIAL ANALYSIS

#### GOALS

The financial goals of the garri production facility in Nike are:

- To be fully self-supporting financially (operations, maintenance, distribution, staffing,

debt repayment, and other general business expenses) by September 2019

- To return at least #170,000/year to the Nike Social Program Initiative (led by the Community Development Team), beginning by September 2019
- To retain 50% of sales for reinvestment in the current business
- To begin expanding the business by 2017

## STRATEGIES

Four strategies are being employed to achieve these goals:

- Invest in operational efficiency, specifically in harvesting, peeling and roasting tubers
- Become wholesalers' preferred supplier by offering higher quality products and reliable distribution at parity prices
- Contain costs by growing tubers on leased land, training staff to operate and maintain

equipment, and providing close management oversight of purchases, sales, and cash

flow

- Engage local experts in garri production and African business practices to minimize unforeseen startup issues

## MEASURES

Success of this business (from a financial standpoint) will be measured in terms of unit costs

(total delivered cost per 65-kg bag), daily production throughput and quality, sales volume per

week, and sales price. These measures will be tracked weekly to identify opportunities to

improve the business model. In addition, longer term measures include on-time repayment of

debt, and the percent of sales retained for reinvestment in the business and social programs.

Measures of success for the social aspects of this business are addressed in other sections of this

plan.

## ASSUMPTIONS



Key assumptions for this financial analysis include operational reliability, distribution reliability

and sales volume.

Because garri production (harvest-to-drying) must be completed within 24 hours, operational

reliability of these unit operations (harvest, peeling, grating, and roasting) is important to

minimize product losses. The business plan allows extra time to accommodate minor

breakdowns (such as a jammed peeler or minor motor repair). The level to which the equipment

is maintained relies heavily on the skills of the technicians and laborers. To this end, Nimez Agric.

will rely on local and USA experts to train and manage all employees, ensuring a smooth

startup and learning curve.

Distribution reliability is an important part of becoming the wholesalers' preferred supplier. The

run-ability of the Nimez Agric. delivery truck will require stocking spare parts and following a

schedule of preventive maintenance.

Sales volumes were estimated based on direct discussions with wholesalers. However, the

schedule for reaching the targeted volumes may need to be adjusted as we gain experience with

production and demand cycles. Nimez Agric. has the option of increasing the sales radius,

should volumes "close to home" take longer to materialize than expected.

#### CAPITAL PURCHASES

The key capital purchases for this business include:

- Farm equipment for planting and harvesting: tractor, tiller, farm implements
- Processing equipment: mechanical peeler and paddle-wheel roaster
- Passenger vehicle
- Facility upgrades

The farm and processing equipment purchases allow for higher throughput, while reducing

staffing levels, improving safety and quality. The passenger vehicle will provide transportation

for the project manager and senior Nimez Agric. staff when they are in-country and will provide

a back-up vehicle for deliveries should we encounter difficulties in contracting for a larger

delivery truck. Facility upgrades are important to improve quality standards (reduce contaminants, improve sanitization) and throughput targets. Other minor capital purchases are

detailed in the financial tables in Appendix I.

#### ONGOING EXPENSES

Laborer/technician wages is the largest single category of this project's ongoing expenses. Other

variable costs include fuel, maintenance, field fertilizers, and product packaging. The largest

categories of fixed costs are (in order largest to smallest) supervisor salaries, interest on loans,

depreciation and business fees/permits.

#### STAFFING

The starting level for labor and technician staffing is 20 people. This assumes one 8-hour shift

per day, five days/week. The staff will flow to the work, but generally will be divided into farm

(4 people), operations including maintenance and repairs (13 people) and deliveries (2 people).

The staff will be paid above prevailing wage rates to reduce turnover and retain valuable skills.

Management staffing will include a project manager from the USA provided at no cost to the

project through the Peace Corps Response Program, one farm manager (responsible for planting,

growing, and harvesting the cassava), provided at no cost to the project by SLARI, and a

consultant (Mucksin Chinemerem) with long experience in agriculture and community relations to be

paid by Nimez Agric. In addition, technical and management consultants from SLARI and

Benhood will be available on an as-needed basis. The project manager shall have authority and

responsibility for all aspects of the project including hiring of laborers and technicians, financial

management, and sales and distribution of the garri.

#### PERMITS, FEES

Government permits and other business fees are projected to cost Nimez Agric. ≤ #3000/year.

This figure was based on the experience of Benhood Industries, currently operating a garri

production plant in Enugu. Unfortunately, bribes are still common in Nigeria, and while a

portion of this amount may cover incidental bribes, the plan is to operate this business with as

few as possible.

#### PRICING STRATEGY

The target price for a standard, 65-kg bag of garri is #15190, which is estimated to be equal to the

average of current suppliers. At an estimated #14175 total delivered cost, this will provide

Nimez Agric. with a projected profit margin of #1025 per bag.

Reaching target sales volume is important to the viability of this business. Before lowering the

standard price of garri, Nimez Agric. will offer wholesalers other incentives, including:

- Reliable deliveries to their warehouse (most wholesalers now pick up product from suppliers)
- Payment options or modest levels of short-term credit
- Special package sizes or labels
- Refunds for damaged or off-spec product (due to production or delivery issues)

If needed to remain competitive, Nimez Agric. has an adequate margin to offer higher-volume

discounts, or hold special promotions (around holidays, for example). Nimez Agric. will

permanently reduce prices as a last resort.

## SEASONALITY

The harvest and production season for garri is ten months per year (heavy rains in July and

August cause high water content in the tubers and harvesting then is difficult due to heavy rains).

Therefore, inventory will be accumulated in other months to cover sales through the summer; the

ability of Nimez Agric. to provide a continuous supply through this time will be a point of

differentiation from competitors. Because much of the farming and operations will be paused, the

monthly plant costs will be reduced significantly. However, this annual plant shutdown period

will allow annual, planned maintenance items to be addressed. Some workers may be

furloughed during this time which is a practice they are accustomed to. We will insure that their

annual salary remains high enough for the positions to be highly competitive.

## Income Projections

At steady operation, income from garri sales is expected to be about #35,000/month for ten

months per year or #350,000/year. This assumes a sales volume of 83.3 MT/month or 1,000 MT/

year. The ramp-up to full production is expected to take only 2-3 months, because the technology

is proven and initial market inquiries were very positive.

The full Projected Income Statement is provided in Appendix II.

## Break-Even Analysis

The financing requested for capital purchases and first year start-up expenses is #140,000. After

all expenses and considering a normal business start-up curve, the projected break even time for

the business is still less than two years.

When considering all areas of investment, the total business investment is estimated to be valued

at approximately #350,000 (see Needed funding). Assuming annual steady-state sales revenue of

#350,000 and expenses (including debt repayment, reinvestment in the business and funding

planned social programs) of #238,000, the net profit is projected to be #112,000/year. Thus, the

predicted time to break-even on the overall business plan is well under five years.

Cash Flow

The debt equity and financing will cover capital purchases and initial startup/farming expenses.

These costs include preparing the land, planting cassava, and renovating the production facility.

Income from early sales from an existing cassava crop (planted in 2020) is expected within 7-8

months from funding (September/October 2018), at which time the cash balance available to run

the farming operation is primarily based on these sales. The 2018 cassava planting will be ready

for harvest in April 2019. Expenses during this period between the 2020 and 2021 harvests are

minimal and limited to farming activities.

Full production and sales revenue associated with the 2018 crop is expected in April 2019. A

cash flow projection is provided in Appendix I.

BALANCE SHEET

A Balance Sheet is also provided in Appendix I. There are two columns for 2018, the first in

April and the second in December, with the processing of the 2020 cassava planting in

September and October included in the December column. Full production is scheduled to begin

in April 2019, and will be continuous from that point forward, except for the rainy months of

July and August.

A sensitivity analysis was conducted on 3 variables:

- Profit Margin (Price vs. Total Delivered Cost)

- Schedule

- Volume

The current profit margin is #1025/65-kg bag. At a projected volume of 1,000 MT/year, the profit

(after reinvestment in the business and funding for social programs) would be about #100,000/

year. Reducing the profit margin by 50% still allows a healthy profit of about #50,000/year. This

profit can be used to cover unforeseen expenses, expand social programs, and/or to seed

additional growth in the business.

The schedule for planting, harvesting, processing cassava tubers is sensitive to planning around

the rainy season in July/August. A slower ramp-up curve can risk depleting the cash available for

farm operations. This can be addressed by minimizing staffing levels and other expenses during

the slower periods.

All of the financial projections assume the ability to sell all 1,000 metric tonnes of garri produced.

This appears to be a sound assumption based on the reaction of wholesalers that Nimez Agric.

approached in its market research. If the assumptions do not materialize within the current sales

radius, additional towns and cities will be added (on a less frequent delivery cycle if necessary

because of distance) to ensure that all product made is sold. A second option is to drop the sales

price. As a worst case scenario, selling only 50% of the garri produced (producing an income of

#15,000/month instead of #30,000/month) still allows the business to break even, until such time

as volume can be increased.

## GROWTH PLAN

Continued growth of the business is critical to the social mission of Nimez Agric, whose intent is

to change lives and the economic landscape in many communities across Nigeria. Growth

may take the form of additional cassava processing plants making garri, expansion of operations

into other cassava-based products, and/or expansion into other non-cassava-based products.

There are several shuttered cassava processing facilities located around Nigeria (which

failed, inter alia, because they bought cassava from farmers rather than growing it themselves)

that can be used to replicate the business at Nike. Using existing facilities to make greater

volumes of the same garri product would be the most straight-forward way to expand the Village

Hope enterprise. An intriguing opportunity that will be explored is the custom mixing of garri

with fortifiers that will make the product more nutritious, which can then be sold through the

World Food Programs.

Other cassava-based products will be evaluated for production and sales, including starch and

chips. Starches and chips are both sold both domestically and internationally. Exporting chips for

use in ethanol plants would be a much bigger undertaking, but the payoff is (currently, based on

prices and volumes) much larger.

Finally, there may be opportunities for producing non-cassava-based products that might be a

good fit for our expertise and assets.

Future growth of the Nimez Agric.garri business will be considered when:

- The production facility in Nike hits throughput and reliability targets for 12 months
- Sales volumes have consistently hit targets for 10 months
- A review of the competitive landscape indicates that additional volume or products can be profitably added to the market

In any case, growth plans will be formulated during 2019 with expected expansion in 2020.